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See opposite page

ADDRESSES AND ORIGINAL ARTICLES

THE B.I.P.P. METHOD OF TREATMENT OF ACUTE OSTEITIS*

BY JAMES H. SAINT, M.D. Durh., F.R.C.S. Eng., F.A.C.S.

CONSULTING SURGEON TO THE THOMAS KNIGHT MEMORIAL HOSPITAL, BLYTH, AND SENIOR SURGICAL REGISTRAR AT THE ROYAL VICTORIA INFIRMARY, NEWCASTLE-ON-TYNE

ALTHOUGH acute osteitis may be said to be relatively infrequent in comparison with the more common acute surgical conditions, its seriousness must necessarily render this disease one of great importance. Wakeley (1932) quoted figures from hospitals in the British Isles to show that there was a gradual lowering of its incidence in the last decade as compared with that of the first decade of the century. However, the latest figures from the Registrar-General's office show that whereas in 1931 there were 403 deaths from this disease,† in 1935 the number was 447. Other figures from the same source indicate that the death-rate was a little higher in 1926–30 than it was during 1921–25, but that since 1930 there has been no significant change. Thus it seems that the last 15 years have not brought forth evidence to support the comforting belief in a continued, though gradual, disappearance of this disease.

Some idea of how serious acute osteitis is may be had from Table I, which shows the fatality-rates in recently published series of cases.

TABLE I

Fatality-rates in Acute Osteitis

Author.	Percentage of deaths.
Eric Lloyd (1928)	32·5
Pyrah and Pain (1932)	27·1
John Fraser (1934)	23·2
Ogilvie (1928)	21·0
Gwynne Williams (1932)	19·9
Alex. Mitchell (1928)	14·3
Holman (1934)	9·7

It is seen that in some instances one patient out of every three or four died, a fact which cannot be regarded with complacency. Mortality alone, however, is not the only feature of acute osteitis that makes it a disease of serious import, for amongst those who recover may be seen deformity and interference with function of greater or less degree, and these patients often suffer from recurrent attacks, either in the bone first affected or in others, at intervals during a long life. Thus acute osteitis often leaves in its wake sequelæ that may cause, if not actual chronic invalidism, at least impairment of capacity for work and of enjoyment of life. Any method of treatment, therefore, that holds out hope of reducing its mortality and decreasing its morbidity deserves consideration, and it is the belief that the B.I.P.P. (bismuth-iodoform-paraffin paste) method of treatment may accomplish these objects that is largely responsible for this contribution.

The term "osteitis" is used throughout as meaning the inflammation of any or all of the constituent parts of bone which are so intimately connected with one another—namely, the periosteum, osteum, and medulla. In view of this nomenclature such terms as periostitis, indicating inflammation of the periosteum, and osteomyelitis (or myelitis), intended usually to infer inflammation of the marrow-containing medullary cavity, become superfluous apart from possessing the disadvantage of tending to denote that they represent separate diseases.

The present article will consider only the typical form of acute osteitis found in young people where the blood stream is the channel of infection. No reference will be made to the more uncommon type due to the direct introduction of organisms into the bone as, for example, in a compound fracture.

Pathological and Clinical Aspects

Success in combating any acute infective disease depends upon two factors: first, correct diagnosis of the condition in its earliest stages—i.e., before complications, due to spread of the infection, have developed; and secondly, the institution of a rational form of treatment based upon a proper conception of the pathology present. Acute osteitis is no exception to these general rules, and attention is drawn to certain of its pathological and clinical features which have an important bearing on these points.

PATHOGENESIS

Acute osteitis begins as a small, delimited focus of infection in the cancellous tissue of the metaphysis of one of the long bones, usually at the more actively growing end. The importance of realising this fact cannot be over-emphasised, for at this stage the focus can be completely removed, this procedure constituting the rational treatment. From this focus, the infection if not checked will spread to involve the periosteum, the surrounding soft tissues (giving rise to an acute cellulitis), and the medullary cavity. Thus it is seen that "acute periostitis" and "acute osteomyelitis" are not separate diseases but are only complications due to the spread of infection from the initial bony focus, the infection still being confined to the bone itself. Starr's hypothesis (1922) that the spread of infection commonly takes place towards the periphery, resulting in early involvement of the periosteum, and that infection of the medullary cavity occurs relatively late by way of the Haversian canals secondarily to involvement of the periosteum, receives support in my own clinical experience, for in my series of cases a subperiosteal abscess was often present while the medullary cavity was not yet involved.

A further feature of the pathology of acute osteitis is the relationship between the general and local infections. It is often stated that acute osteitis is "a local manifestation of a systemic disease," but this appears to be an incomplete representation of the true facts. It is accepted that the organisms reach the bone by way of the blood stream, this path of infection presupposing a septicæmia to be present before the bone becomes affected. Since this is so, it must be admitted that this septicæmia must be a mild type since it gives rise to no symptoms, the general symptoms which point to an infection of the blood stream only obtruding themselves upon the clinical picture *after* the development of the bony focus. Thus it seems reasonable to assume that these symptoms are caused by a reinfection of the blood stream from this focus. It is suggested, therefore, that the sequence of events is as follows: (1) a mild

* Based on a Hunterian lecture delivered at the Royal College of Surgeons of England on Feb. 5th.

† The varieties of disease or description of disease included in this group by the Registrar-General are as follows: acute osteomyelitis, epiphysitis, osteoperiostitis or necrosis of bone; infective osteomyelitis, periostitis or necrosis of bone; septic or suppurative osteitis or osteomyelitis or epiphysitis and Brodie's abscess if found after inquiry to be a description of one of the foregoing diseases.

form of septicæmia with slight or no symptoms (consequent upon some septic focus in the skin or mucous membrane); (2) a focus of infection developing in the metaphysis of one of the long bones (the condition then becoming one of acute osteitis); (3) severe blood-stream infection (toxæmia or septicæmia in the early stages or pyæmia later) due to absorption of toxins or organisms from the bony focus. Hence to regard acute osteitis as "a local manifestation of a systemic disease" is to consider only the relationship between the bony focus of infection and the primary mild septicæmia and to omit to take into account the all-important fact that the serious systemic infection seen in acute osteitis occurs *after* the development of the bony focus and *is consequent upon it*. This view of the pathological sequence of events is one that calls for removal of the bony focus at the earliest possible moment.

SYMPTOMS AND SIGNS

From what was said about success in combating an acute infective disease, it follows that the important clinical features to know about acute osteitis are those that will help to establish the diagnosis of this condition in its earliest stage. The clinical picture, only too easily diagnosed, of high temperature, delirium, and a red, hot, swollen limb, almost literally a bag of pus, indicative of the spread of infection to such an extent as to make it almost impossible to save life, should be regarded as a relic of the past when the early symptomatology and pathology were but little understood. It is true that the disease occurs in young subjects before the epiphyses have united, that the patient is usually of the hospital class, often undernourished, with evidence of some recent infection of skin or mucous membrane and with a history of a blow or fall, but with the exception of the first-mentioned all these features may be absent in a given case. It is therefore important to bear in mind that, as in other acute surgical conditions, the history may not be typical and that an atypical one must not be allowed to cast doubts upon the diagnosis. What, then, are the special features in the symptomatology which can be said to point unequivocally to the diagnosis of acute osteitis in its earliest stage? They may be considered under *general* and *local* and are as follows:—

GENERAL

Inflammatory fever.—Often starts with a rigor, especially in severe cases, with a temperature of 100°–105° F. and of a continuous type.

Polymorphonuclear leucocytosis.—This is always present except in cases where the virulence of the infection is so great as to overwhelm the resistance of the patient; it is important because it indicates the presence of a pyogenic infection.

LOCAL

Pain of sudden onset and intense, over the end of a long bone; it is worse at night and usually prevents the patient from sleeping for more than minutes at a time.

Tenderness.—Where the pain is complained of, palpation will reveal a spot of exquisite tenderness.

This triad of *elevated temperature* with *pain* and *tenderness* over the end of a long bone found on clinical examination, associated with a *leucocytosis*, definitely establishes the diagnosis and should be impressed upon the minds of medical students and practitioners, so that no doubt will remain about the significance of these findings and so that any patient found suffering from them will be regarded as a surgical emergency.

Since the diagnosis appears simple, why is it that so many cases of acute osteitis are not seen by a surgeon for several days after the onset of their illness? There is no doubt that the most prevalent cause of delay is the provisional diagnosis of acute rheumatic arthritis accompanied by the decision to await the result of giving salicylates. What are the reasons for this frequent error of diagnosis? They are to be found in the swelling (the so-called "sympathetic effusion") and apparently painful movements of the adjacent joint, leading to inadequate examination. Insufficient attention is paid to other symptoms and signs which are present—namely, that the pain is not *in* the joint but only *near* it, that careful palpation will reveal an adjacent metaphysis to be exquisitely tender, and that a definite degree of passive movement of the joint is obtainable without pain such as would never be the case were the joint the seat of an acute rheumatic arthritis. Absent also will be the involvement of other joints and the peculiar sweating of the rheumatic patient. Two other conditions which may be mistaken for acute osteitis are acute infective arthritis and acute cellulitis, but these have the advantage of being such that a surgical opinion will be sought at once, so that no time will be lost. In the former, any attempt to obtain passive movement causes excruciating pain and such pain may be caused even by an attendant walking across the floor or by touching the bed, much less the affected extremity. Acute cellulitis near the ends of the long bones is so uncommon in the absence of underlying bone infection that it was made the subject of one of Rutherford Morison's many pertinent aphorisms, "Cellulitis in a young limb means osteitis." However, it should be remembered that cellulitis is a complication of osteitis and indicates that the infection has already spread through the periosteum into the surrounding soft tissues. There is one further observation that is of great use in the diagnosis of acute osteitis, and that is the absence of involvement of the lymph glands draining the area superficial to that where pain and tenderness are present; these are always the seat of a lymphadenitis in cases where the infection has begun in the soft tissues.

Actions of B.I.P.P.

Bismuth-iodoform-paraffin paste (Bipp) consists of bismuth subnitrate 1 part, and iodoform 2 parts, mixed with liquid paraffin in sufficient quantity to form a paste. The presence of the bismuth salt recalls the paste used by Emil Beck, but the addition of the iodoform results in a chemical action which gives Bipp its valuable properties. In the Pharmaceutical Codex the formula of Bipp is given as bismuth subnitrate 25 per cent., iodoform 50 per cent., and liquid paraffin 25 per cent. One interesting feature of this formula lies in the fact that whereas iodoform is used ordinarily in strengths of 5–10 per cent., its incorporation into Bipp enables it to be used in a strength of no less than 50 per cent. The origin of Bipp dates back to the late war when, at the Northumberland War Hospital, Prof. Rutherford Morison (1918) was experimenting, with the help of Mr. W. W. Hunter, to find an ideal antiseptic—that is, one of such a strength as to inhibit the growth of organisms without doing tissue cell damage. At this time many of the men sent to this hospital had foul, discharging wounds necessitating frequent dressings, to the exhaustion of the nursing staff and to the agony of the patients themselves. After the institution of the Bipp method of treatment the scene changed dramatically, for these wounds ceased to be painful, dressings were only necessary at weekly or less frequent intervals, and the wards "were

full of cheerful men, whose chief anxiety seemed to be to know when they could get up" (Morison 1922). This method of treatment was adopted widely for wounds and compound fractures, both clean and infected, by the British Army authorities at home and abroad and was the means whereby thousands of limbs and lives were saved, to say nothing of the relief from suffering which was achieved.

The chemical and bacteriological actions of Bipp were demonstrated by the work of Anderson, Chambers, and Goldsmith (1917) as a result of extensive experiments. They consider that the chief chemical reaction that takes place consists in the oxidation of the iodoform by oxygen derived from the air or from arterial blood and by the nitric acid formed by the hydrolysis of the bismuth salt. The result of this reaction is the continued liberation of small quantities of free iodine. They found that although organisms were still present in wounds treated by Bipp yet they were unable to proliferate freely and that the wounds healed as though they were surgically clean. It seems that the introduction of Bipp into a wound results in the liberation of nascent iodine, this forming a mild, continuously acting antiseptic which acts as a deterrent to the growth of organisms but does no harm to the tissues. As illustrating this continuous chemical action of Bipp, it is of interest that after the application of the paste to a wound, iodine has been recovered daily in the urine for as long as three weeks.

At this juncture it might be well to draw attention to the fact that Bipp can act as a poison, a disadvantage from which it was found to suffer in the early days of its use, if large quantities were left in wounds. It is also dangerous to use it in the serous cavities on account of possible absorption of the iodoform. Except for occasional idiosyncrasy, examples of which must be very rare and have never occurred in my extensive experience of Bipp, there need be no fear of poisoning provided that the paste is used sparingly in the manner to be detailed later. Should poisoning occur, it may be due to either the iodoform or the bismuth salt. Iodoform poisoning is usually seen within 24 hours of operation, the symptoms being a high temperature—often 103° to 105° F.—a rapid pulse, dilatation of the pupils, a red tongue, and sometimes the appearance of a bright scarlet rash. There may be no complaint from the patient. The pulse becomes more feeble and rapid and the patient may die delirious and of heart failure. Bismuth poisoning is a later manifestation, the symptoms usually not appearing until four or five days after operation. The patient complains first of a sore mouth and on examination the breath is foul, the gums are spongy and show a black line round the teeth due to the deposition of bismuth sulphide. In severe cases much salivation is present, the black deposit may be seen on the tongue and cheeks as well as on the gums, and ulceration is likely to occur, the breath meanwhile becoming more and more foul; diarrhœa may ensue, the temperature becomes raised, a secondary anæmia develops, and the patient's condition rapidly deteriorates. In either case the only hope lies in the immediate evacuation of the Bipp and while this may lead to relief in a case of bismuth poisoning, patients with serious symptoms of iodoform poisoning often die in spite of this measure and any others that may be taken.

Method of Treatment

The principles which govern this method of treatment of acute osteitis may be outlined briefly as consisting of (1) the complete removal of the infected bony focus, (2) the disinfection of the resulting wound by Bipp in the manner to be described, and (3) immobilisation of the affected part. It is considered that these measures will arrest the spread of infection if they have been carried out efficiently. With this object in view, it is clearly important to realise that the disease begins as a small bony focus, for this can be completely removed, and that delay in diagnosis, through leading to spread of the infection, will render the operative treatment more prolonged and more extensive and may decrease materially the likelihood of complete removal of the infected tissue, thereby leading to further complications perhaps with a fatal issue.

THE OPERATION

Rather than describe the technique of this method of treatment in general terms, it may be better understood by describing it in a typical case as, for example, one in which the upper end of the tibia is the seat of acute osteitis, when the operation would be conducted as follows:—

General anæsthesia.—Provided that this is well administered, there need be no special preference given to one type over another.

Preparation.—A tourniquet applied to the thigh should be considered essential for without it the patient may lose a considerable amount of blood, and children, who form the majority, do not withstand hæmorrhage well. The skin of the whole leg distal to the tourniquet should be cleansed with 1 in 20 carbolic or other antiseptic. A sandbag is placed so that the leg will rest upon it and the sterile towels arranged in position.

Incision.—A free vertical incision is made down to the bone with its centre over the focus, indicated previously by the most tender spot that is found over the antero-internal surface of the tibia. The periosteum will usually be seen to be œdematous, indicating underlying mischief, while in some cases an actual subperiosteal abscess will be encountered when the pus is evacuated and the abscess wall cleaned gently by mopping it. The incision in the periosteum should be long enough to give a satisfactory exposure of the underlying bony surface.

Removal of the bony focus.—The focus is sought for in the suspected area by drilling, which is stopped as soon as pus is seen to emerge from a drill-hole. The bone is now opened up with a gouge and every visible trace of inflamed cancellous tissue removed, the opening being enlarged only as far, but no further, than is necessary for this purpose. The medullary cavity must not be opened unless the infection has spread into it, and such an opening is regarded as necessary for the efficient removal of purulent contents. It may be difficult to know when one has come to the margin of the diseased area but ordinarily this is not so, for the yellowish-white purulent focus contrasts greatly with the normal reddish cancellous tissue. The absence of pus on drilling—a rare occurrence—should not affect the decision to open up the bone, for a purulent focus may be discovered only when this is done. In early cases no pus may be found at all, but there will be a focus consisting of tissue that is softer in consistence and more hyperæmic than normal cancellous tissue. Occasionally pus may exude from a drill-hole and yet on opening up the bone no more may be found, what little there was having escaped through the hole; in such a case, however, a definite focus of soft and hyperæmic tissue will be found. From the foregoing description it will be seen that a "gutter" operation has been performed with the specific purpose of removing the focus of infection in the bone, but it is emphasised that the amount of guttering done must only be commensurate with efficient removal of the infected tissue and that unnecessary opening up of healthy tissue is to be strongly deprecated. This type of operation has the added advantage that, in the event of some of the infected tissue being left behind, the opening in the bone is large enough to provide adequate drainage.

Disinfection of the wound.—The whole of the wound cavity is thoroughly mopped out with methylated spirit and then dried. The spirit is not only an efficient cleansing agent but, by its dehydrating action, leaves behind a dry surface to which the Bipp can adhere. Some Bipp is put on a dry gauze and rubbed into every part of the bone cavity and wound surface and all excess is removed, there being left behind only a thin covering of the paste over the exposed tissues.

Closure of the wound.—The bone cavity is now packed with a Bipped gauze and the wound closed with interrupted sutures of thick Bipped silk except for the gauze exit, which leaves a passage for discharge. The packing of the cavity is advantageous since the gauze acts as a preventive against the hæmorrhage which would otherwise take place on removal of the tourniquet, and if some infected tissue has been left behind the organisms would find an ideal pabulum in the blood which would fill the cavity in the absence of the gauze. It is found that sutures of thick silk tend to cut through the skin much less than those of silkworm.

Dressing.—Sterile boric powder is sprinkled liberally over and around the wound and a dressing put on consisting of dry gauze and abundant wool. The limb is then immobilised by fixing it on a back splint with Gooch side splints or plaster-of-Paris may be used for this purpose if preferred. The tourniquet is removed and the limb elevated.

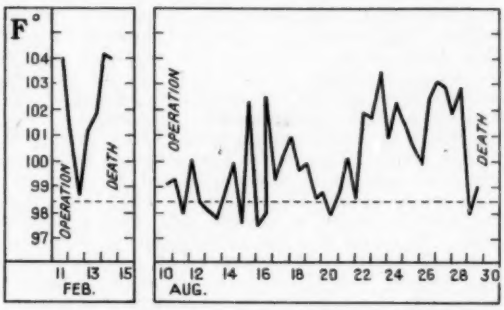
AFTER-TREATMENT

Should hæmorrhage appear on the bandage—a rare occurrence—methylated spirit is poured over the stains and after this has been done the hæmorrhage will usually cease. Unless the patient should feel that the dressing is uncomfortable or there is much discharge—also rare—it is not touched for 10–14 days, when a general anæsthetic is given, the dressings and the sutures removed, the wound opened, and the gauze taken out. It will be seen that all the wound cavity is clean and lined by healthy granulation tissue.

The treatment of the cavity now comes under consideration. Should it be small no further treatment is necessary, and the wound, after being cleaned afresh with methylated spirit and a thin layer of Bipp applied to its surface, is closed again with interrupted sutures of thick Bipped silk. Following this there is usually little or no discharge and at the end of another 10–14 days the wound may be found to have healed entirely. Should there be any discharging area at this time, two or three weeks will usually suffice for its cessation.

When dealing with larger cavities it is advisable to resort to some means of attempting obliteration and the best method of doing this lies undoubtedly in the use of the pedicled muscle graft. In the situation under review—namely, the upper end of the tibia—such a graft is easily obtainable, it being possible to use either the tibialis anticus or the soleus, although the former is preferable as the operation is likely to be more easily accomplished. The cavity will have to be enlarged by removing the adjacent part of the crest of the tibia as the base of the graft must not lie over a ridge of bone, since the blood-supply to the distal portion of the graft would probably be seriously jeopardised. The graft is cut with its base proximal to ensure the blood-supply necessary for its survival, Bipped and laid in the cavity. The wound is then closed, as before, without drainage. While such a wound may heal by first intention, there may be a small amount of discharge which only calls for infrequent dressing and will probably cease in a week or two. The result of this method of dealing with the cavity is that a scar is formed consisting of the full thickness of the skin.

Mention of the use of free fat grafts should not be omitted when considering the obliteration of a bone cavity, for it is often successful. The grafts are usually easily obtainable from the thigh, gluteal region, or the abdominal wall, and this method is particularly valuable in situations where it is impossible to obtain a pedicled muscle graft such as the lower end of the tibia. On the whole, however, the muscle graft is to be preferred.



FIGS. 1 and 2.—Temperature charts in two fatal cases.

Unless the gutter made in one of the long bones of the inferior extremity is exceptionally large, it is safe to allow weight-bearing some two months after the institution of treatment.

COMMENTS

There are several observations on this method of treatment which might well be made here. On the day following operation the temperature usually begins to descend and in some cases drops to normal in a dramatic manner, to remain afebrile. The absence of post-operative pain is remarkable and gratifying, for the intense pain experienced before operation will be found to have disappeared when the effects of the anæsthetic have worn off. In my earlier cases even large cavities were packed and allowed to heal by granulation, but this method of procedure has the disadvantage of taking three or four months before healing is complete, and it results, when a subcutaneous bone such as the tibia is involved, in a thin scar adherent to bone, although it is only fair to state that it is by no means necessary to wait until such a cavity has healed completely before getting the patient up and allowing him to walk or attend school, for a weekly dressing is all the care that is required. However, it is obvious that this is a poor method of dealing with a bone cavity when compared with the quick and efficient closure of such a cavity as described above.

It will have been noticed that, in the description of the Bipp method of treatment, no mention was made of the formation of sequestra, the apparently common result and bugbear of other forms of treatment of acute osteitis. The truth is that apart from the flaky variety that are discharged naturally without any trouble to the patient, sequestra do not form and that secondary operations for their removal are therefore not necessary. It is interesting to consider the reasons for this remarkable absence of sequestrum formation. At operation it is usually impossible to tell what amount, if any, of the dense bone is either already dead or likely to die, but there seems no doubt that by the guttering over the focus of infection much of the dense bone which has necrosed, and which would later separate as a

sequestrum, is removed. Also, the provision of such adequate drainage combats the risk of further necrosis due to tension which might occur as a result of the inability of the products of inflammation to escape sufficiently quickly if, by any chance, they were not completely removed at operation. Furthermore, from what has been said about the bacteriological action of Bipp, the absorption of the iodine seems to control the infection even when it has spread into the tissues around the excised area, this control leading to diminution of inflammation and therefore of tension, and so helping to avoid the formation of sequestra. These reasons appear to explain satisfactorily the absence of sequestration following the treatment of acute osteitis by the Bipp method.

Lastly, it will have been realised that the technique of this method is relatively simple, this in itself being a commendation for its employment.

TABLE II

Bones Affected in 21 Cases of Acute Osteitis

Femur (lower end)	.. ..	7	11
Tibia (upper end)	.. ..	3	
,, (lower end)	.. ..	1	
Humerus (upper end)	.. ..	3	10
Fibula (lower end)	.. ..	2	
Radius (lower end)			
Clavicle (inner end)			
Os pubis	1 each ..	5	
Os calcis			
Fifth metatarsal			
Total	.. .. ..		21

Résumé of Personal Cases

The series reported here numbered 21 patients, all of whom were operated upon during the past six years at the Royal Victoria Infirmary, Newcastle-on-Tyne, and the Thomas Knight Memorial Hospital, Blyth. This number, though not large in itself, has provided sufficient personal experience to substantiate certain claims that will be made for this method of treatment.

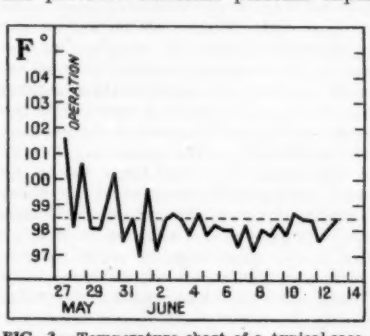


FIG. 3.—Temperature chart of a typical case of acute osteitis treated with Bipp, indicating length of stay in hospital.

In 15 cases there was a definite history of injury, and of 19 in which a bacteriological examination of infected tissue was made, a growth of *Staphylococcus aureus* was obtained in 18, no organism being grown from the remaining one. The ages varied between 3 and 17, 11 of the patients being under 12 and the remaining 10 over that age. As regards sex and the bones affected, this series agrees very much with others which have been reported. There were 14 males and 7 females, a proportion of two to one in favour of the former. Table II shows the bones affected. From this table it will be seen that the femur was the bone accounting for a third of the cases and that the femur and tibia combined comprise just over a half of the total number. It is also of interest to recall that the lower ends of the femur, fibula, and radius and the upper ends of the tibia and humerus are the more actively growing ends of these bones.

In general terms, the aims of treatment of acute osteitis may be said to be first, the preservation of life, and second, the preservation of growth and function, and the results given below indicate the degree to which they have been achieved by the Bipp method of treatment in the present series of cases.

FIG. 4.—Late result in a case of acute osteitis of the right femur treated with Bipp. There was no deformity or shortening. Knee-joint shown in full flexion.

IMMEDIATE RESULTS

These are considered under the following headings: (1) fatality, with discussion of fatal cases; (2) complications which arose before discharge from hospital; (3) length of stay in hospital.

Fatality, with discussion of fatal cases.—There were 2 deaths in this series, a fatality-rate of 9·5 per cent., a rate much lower than most of those shown in Table I. While it is realised that it is manifestly unfair to judge any method of treatment on fatality alone because of those patients who are so ill when first seen by the surgeon that their fate is not decided by operative treatment, yet human nature is such that a method which has been shown to be associated with a low mortality will always be regarded with more enthusiasm than one that has resulted in a larger percentage of deaths.

The first fatal case was that of a boy, aged 16, who was admitted to hospital with great pain in the much swollen region of the left shoulder. The patient had been delirious while at home and on admission he was obviously very ill, having a temperature of over 104° F., a rapid and weak pulse, sordes on the lips, and sunken eyes. At operation a large subperiosteal abscess was found and nearly all the cancellous tissue of the upper end of the humerus was purulent, but the infection had not involved the medullary cavity of the bone. Between the time of his operation and his death four days afterwards, he developed a left-sided parotitis and an effusion into the left knee-joint. His temperature, shown in Fig. 1, came down to normal on the day following his operation but then rose again to over 104° F. just before he died. A post-mortem examination was not obtained.

Most surgeons with experience of acute osteitis have met cases which, when first seen by them, were obviously suffering from an overwhelming blood-stream infection of the nature of a septicæmia or septico-pyæmia. About such cases there appears to be general agreement that the condition is due to the virulence of the organism, to the lack of resistance of the patient, or to a combination of them, and that no treatment, either conservative or radical, is likely to be of any avail, the patient's doom being already sealed. I believe this to have been such

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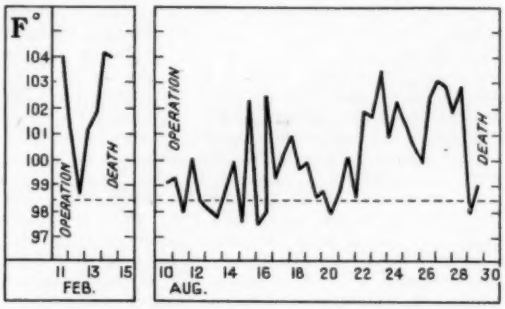

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There are several observations on this method of treatment which might well be made here. On the day following operation the temperature usually begins to descend and in some cases drops to normal in a dramatic manner, to remain afebrile. The absence of post-operative pain is remarkable and gratifying, for the intense pain experienced before operation will be found to have disappeared when the effects of the anæsthetic have worn off. In my earlier cases even large cavities were packed and allowed to heal by granulation, but this method of procedure has the disadvantage of taking three or four months before healing is complete, and it results, when a subcutaneous bone such as the tibia is involved, in a thin scar adherent to bone, although it is only fair to state that it is by no means necessary to wait until such a cavity has healed completely before getting the patient up and allowing him to walk or attend school, for a weekly dressing is all the care that is required. However, it is obvious that this is a poor method of dealing with a bone cavity when compared with the quick and efficient closure of such a cavity as described above.

It will have been noticed that, in the description of the Bipp method of treatment, no mention was made of the formation of sequestra, the apparently common result and bugbear of other forms of treatment of acute osteitis. The truth is that apart from the flaky variety that are discharged naturally without any trouble to the patient, sequestra do not form and that secondary operations for their removal are therefore not necessary. It is interesting to consider the reasons for this remarkable absence of sequestrum formation. At operation it is usually impossible to tell what amount, if any, of the dense bone is either already dead or likely to die, but there seems no doubt that by the guttering over the focus of infection much of the dense bone which has necrosed, and which would later separate as a

sequestrum, is removed. Also, the provision of such adequate drainage combats the risk of further necrosis due to tension which might occur as a result of the inability of the products of inflammation to escape sufficiently quickly if, by any chance, they were not completely removed at operation. Furthermore, from what has been said about the bacteriological action of Bipp, the absorption of the iodine seems to control the infection even when it has spread into the tissues around the excised area, this control leading to diminution of inflammation and therefore of tension, and so helping to avoid the formation of sequestra. These reasons appear to explain satisfactorily the absence of sequestration following the treatment of acute osteitis by the Bipp method.

Lastly, it will have been realised that the technique of this method is relatively simple, this in itself being a commendation for its employment.

TABLE II

Bones Affected in 21 Cases of Acute Osteitis

Femur (lower end)	.. ..	7	11
Tibia (upper end)	.. ..	3	
,, (lower end)	.. ..	1	
Humerus (upper end)	.. ..	3	10
Fibula (lower end)	.. ..	2	
Radius (lower end)	1 each ..	5	
Clavicle (inner end)			
Os pubis			
Os calcis			
Fifth metatarsal			
Total	.. .. ..		21

Résumé of Personal Cases

The series reported here numbered 21 patients, all of whom were operated upon during the past six years at the Royal Victoria Infirmary, Newcastle-on-Tyne, and the Thomas Knight Memorial Hospital, Blyth. This number, though not large in itself, has provided sufficient personal experience to substantiate certain claims that will be made for this method of treatment.

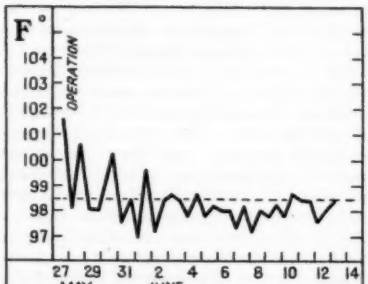

FIG. 3.—Temperature chart of a typical case of acute osteitis treated with Bipp, indicating length of stay in hospital.

In 15 cases there was a definite history of injury, and of 19 in which a bacteriological examination of infected tissue was made, a growth of *Staphylococcus aureus* was obtained in 18, no organism being grown from the remaining one. The ages varied between 3 and 17, 11 of the patients being under 12 and the remaining 10 over that age. As regards sex and the bones affected, this series agrees very much with others which have been reported. There were 14 males and 7 females, a proportion of two to one in favour of the former. Table II shows the bones affected. From this table it will be seen that the femur was the bone accounting for a third of the cases and that the femur and tibia combined comprise just over a half of the total number. It is also of interest to recall that the lower ends of the femur, fibula, and radius and the upper ends of the tibia and humerus are the more actively growing ends of these bones.

In general terms, the aims of treatment of acute osteitis may be said to be first, the preservation of life, and second, the preservation of growth and function, and the results given below indicate the degree to which they have been achieved by the Bipp method of treatment in the present series of cases.

FIG. 4.—Late result in a case of acute osteitis of the right femur treated with Bipp. There was no deformity or shortening. Knee-joint shown in full flexion.

IMMEDIATE RESULTS

These are considered under the following headings: (1) fatality, with discussion of fatal cases; (2) complications which arose before discharge from hospital; (3) length of stay in hospital.

Fatality, with discussion of fatal cases.—There were 2 deaths in this series, a fatality-rate of 9·5 per cent., a rate much lower than most of those shown in Table I. While it is realised that it is manifestly unfair to judge any method of treatment on fatality alone because of those patients who are so ill when first seen by the surgeon that their fate is not decided by operative treatment, yet human nature is such that a method which has been shown to be associated with a low mortality will always be regarded with more enthusiasm than one that nas resulted in a larger percentage of deaths.

The first fatal case was that of a boy, aged 16, who was admitted to hospital with great pain in the much swollen region of the left shoulder. The patient had been delirious while at home and on admission he was obviously very ill, having a temperature of over 104° F., a rapid and weak pulse, sordes on the lips, and sunken eyes. At operation a large subperiosteal abscess was found and nearly all the cancellous tissue of the upper end of the humerus was purulent, but the infection had not involved the medullary cavity of the bone. Between the time of his operation and his death four days afterwards, he developed a left-sided parotitis and an effusion into the left knee-joint. His temperature, shown in Fig. 1, came down to normal on the day following his operation but then rose again to over 104° F. just before he died. A post-mortem examination was not obtained.

Most surgeons with experience of acute osteitis have met cases which, when first seen by them, were obviously suffering from an overwhelming blood-stream infection of the nature of a septicæmia or septico-pyæmia. About such cases there appears to be general agreement that the condition is due to the virulence of the organism, to the lack of resistance of the patient, or to a combination of them, and that no treatment, either conservative or radical, is likely to be of any avail, the patient's doom being already sealed. I believe this to have been such

a case. It is reasonable to assume, however, that some of these cases, if not a fair proportion of them, have passed through a stage of the disease when surgical treatment would have saved their lives. The boy mentioned above had been ill at home for almost two weeks before admission to hospital, and it is probable that recovery would have followed more timely surgery. At the present time, when apparently it is not unusual for one of every four or five patients to die, it would seem that the necessity for early diagnosis is one upon which sufficient emphasis has not been laid. Just as we stress the importance of the removal of an acutely inflamed appendix before the onset of complications resulting from the spread of infection, in like manner should we emphasise the importance of removing the acute inflammatory focus in a bone at the earliest possible moment. This aim can only be achieved by early diagnosis and this cannot be expected unless more attention is given to the initial signs and symptoms of the disease. It should therefore be insisted that in childhood or adolescence, any individual who complains of intense pain of sudden onset in the region of the end of one of the long bones, who has a point of exquisite tenderness in the same region, and who has an elevated temperature must be regarded as a potential case of acute osteitis and surgical opinion sought without delay.

FIG. 8.—Late result in a case of acute osteitis of upper end of left tibia treated with Bipp. Absence of deformity or shortening; full extension of knee-joint. Note the broad adherent scar, the result of healing of the bone cavity by granulation, and compare with Fig. 10.

The second case was that of a girl, aged 3, with acute osteitis of the lower end of the fibula. At operation only a small purulent focus was found and removed. After operation she appeared to be well for five days when her temperature rose to over 102° F. (Fig. 2) and signs of a broncho-pneumonia developed, but with no pain suggestive of pyæmic infarction of the lung. Her temperature fell again but then remained elevated for several days before she died nearly three weeks after operation. During this time the wound itself appeared to progress favourably, there being no clinical evidence suggestive of local spread of infection.

It certainly could not be said that this patient came under the category of having an overwhelming infection at the time of her admission to hospital, for there was then no apparent reason why recovery should not take place and consequently the final outcome was an unexpected disappointment. Unfortunately an autopsy was not allowed.

Complications occurred in 6 of the 19 surviving cases but in 4 of these they were of little consequence, consisting as they did of superficial pyæmic abscesses that healed in less than two weeks after being opened and drained. In 3 of the 4 cases only one abscess formed while in the remaining 1 there were two.

Of the 2 cases in which more severe complications occurred, the first was one of acute osteitis of the lower end of the femur. At operation there was found a large subperiosteal abscess and involvement of the bone to such an extent that a gutter about 6 in. long was required to reach the upper limit of the purulent focus. Unfortunately an accidental fracture occurred. Turbid fluid aspirated from the adjacent swollen knee-joint at the time of operation yielded, like the pus from the bone, a growth of *S. aureus*. Since the patient complained of no further pain after operation and the swelling of the knee-joint gradually subsided, no further treatment of this mild septic arthritis appeared to be indicated and none was undertaken. Further reference to this case will be made when considering restoration of function and sequestrum formation.

In the second case the tibia was the bone involved, there being a large subperiosteal abscess and spread of the infection into the medullary cavity. The operative treatment proved a failure as both the knee- and ankle-joint became involved and eventually the leg was amputated through the thigh as a life-saving measure. After this the patient quickly recovered. There seems no doubt that the failure of the treatment was due to the leaving behind of infected tissue at the first operation.

Each of these patients had been ill for nearly two weeks before coming to operation and illustrate well how delay in diagnosis may militate against success of treatment by permitting of the spread of infection, this not only undermining the general condition of the patient but also increasing the risk of operative accidents or errors in technique which ordinarily are readily avoided.

Length of stay in hospital.—Very little is mentioned in the literature of the length of time patients suffering from acute osteitis are kept in hospital. Ogilvie (1928), reporting a series of 51 cases from Guy's Hospital, found that the average length of stay in hospital was 2 months 12 days—i.e., approximately 72 days—omitting fatal cases and two others who were in for a longer period. These figures indicate how the disease may be of such a protracted nature as to impose severely upon the bed accommodation of any hospital, and sight should not be lost of the important fact that the longer the duration of the illness the worse is the functional result likely to be. It is therefore of interest to contrast these figures of Ogilvie's with those in the present series. Of the 19 surviving cases, 14 were in hospital under 28 days and 2 others under 35 days. The remaining 3 were in hospital for longer periods, 2 of them being the complicated cases mentioned above and the third one of acute osteitis of the lower end of the femur where the wound was packed and allowed to heal by granulation, the home conditions of this patient being such that it was considered advisable to keep him in hospital until the wound had healed completely. The length of stay in hospital of these cases was 59, 95, and 75 days respectively. Fig. 3 is a temperature chart of a typical case of acute osteitis treated by the Bipp method and indicates the short duration of their stay in hospital.

LATE RESULTS

These may be considered conveniently under the following three sections: (1) growth and function; (2) sequestrum formation; (3) recurrence of infection.

Growth and function.—There is an unfortunate lack of information on the late results of acute osteitis concerning growth and function in spite of the fact that, in endeavouring to assess the value of any particular method of treatment, this aspect of the disease must always form an important consideration. Most articles on the subject, while giving prominence to the method of treatment

employed by the author and the mortality associated with it, often omit altogether to mention the effects of the disease on those who were fortunate enough to recover. In no case of this series has the growth of the involved bone been other than normal, there being neither shortening, such as might be caused by extensive damage to the epiphyseal cartilage, nor any irregularity of growth with resulting deformity, such as might occur with its partial destruction. The function of the adjacent joint has only suffered in one case, where an acute osteitis of the lower end of the femur was complicated by a septic arthritis of the adjacent knee-joint, there being now only about 10° of movement present.

Figs. 4 and 5 are photographs of two typical cases taken to show the absence of shortening or deformity and the preservation of function of the adjacent joint.

Sequestrum formation.—In published reports the formation of sequestra following acute osteitis appears to be the rule rather than the exception, although here again the information given is often vague. In the present series the remarkable absence of this feature, which is the chief cause of persistent discharge and which often renders further operation necessary, is therefore noteworthy. In 3 cases tiny, flaky sequestra formed and were discharged naturally without any trouble to the patients. In only one case did a sequestrum form which was large enough to need a second operation for its removal; the femur was accidentally fractured and this was apparently responsible for interference with the blood-supply to a portion of the bone and for the consequent necrosis. In view of the absence of sequestration in other cases in this series where large gutters were made, there is reason to believe that, had the fracture not occurred, in this case also there would have been no sequestrum formation. Mention has already been made of the suggested reasons for this absence of sequestrum formation after using Bipp.

Recurrence of infection.—From some months to six years have passed since the cases in this series were operated upon and while this short post-operative history is long enough to provide accurate information about the effects of the disease on growth, function, and sequestrum formation, it is not long enough to establish with anything like the same certainty the degree of liability to recurring infection, which is one of the well-recognised characteristics of acute osteitis. It may be either in the same or another bone, though usually in a less acute form, it being not uncommon for this to take place as long as 30 years or more after the initial attack. Consequently, the absence of recurrence in this series of cases except in one instance is recorded to complete the investigation of the late results, and not as an attempted proof that recurrence is less likely to take place following the Bipp method of treatment than after any other, for many years must still elapse before accurate information can be obtained on this point.

The case in which recurrence took place was one where the bone originally involved was the left tibia. Three years later the boy was brought complaining of a gradually increasing swelling above the right knee, with a dull, boring pain in the same region. The pain and swelling had been noticed first about three months before the boy was brought for examination, the condition thus being very chronic in contrast to his former acute illness. During this three months the boy had remained in good general health. At operation a purulent focus about 1 cm. in diameter was found in the lower end of the femur, requiring a limited operative procedure for its removal. The Bipp method of treatment was again carried out and the patient had an uninterrupted convalescence. Bacteriological examination showed the presence in the focus of the *S. aureus*, the same organism as that found on the first occasion.

(To be concluded)

DIAGNOSIS AND TREATMENT OF GASTRIC AND DUODENAL ULCER

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Radiology has revolutionised diagnosis, prognosis, treatment, even the classification of disease processes in many parts of the body, and it is no longer permissible to leave any patient in whom symptoms of indigestion have persisted or recurred for some weeks or months without X ray examination. None of the older methods available for the diagnosis of ulcers, whether benign or malignant, are entirely reliable. A few will certainly escape X ray diagnosis also; but if a chronic ulcer is present skilful radiology will disclose it on the first or second examination. An ulcer may give rise to no pain, vomiting, or alteration of appetite; no tenderness may be found when the patient receives the ordinary clinical examination. The test-meal may show a normal or low percentage of acid, or free acid may be entirely absent. The benzidine test may show no trace of blood in either test-meal or stool.

The apparent incidence of ulcer amongst a group of patients with persistent or intermittent dyspepsia may increase by 100 per cent. or more when the X ray diagnosis is made by an experienced, interested, and careful radiologist, until it becomes a matter for surprise when clinical expectations are denied by the Röntgen rays. The degree of discomfort to the patient and his readiness to submit to repeated investigation bear also a simple relation to the skill of the radiologist.

The fluoroscopic examination is obviously of the first importance, but it is a preliminary to the permanent record of the site of the ulcer, and it is unnecessary for physicians who have neither time nor training enough to make their own X ray diagnosis to be content with merely a verbal report. I made a clinical diagnosis of ulcer in 58 patients attending my clinic at Selly Oak Hospital in 1936; Dr. B. T. Hooper, radiologist to the hospital, was unable to make a permanent record in only 3 of these cases. The reliability of skilled radiography does not of course excuse the omission of any of the older methods of diagnosis; the physician has in any case to make the preliminary diagnosis, and must have in mind all the possibilities if serious cases are not to be missed nor the time of biochemist and radiologist wasted.

DIFFERENTIAL DIAGNOSIS OF CARCINOMA

Although it is possible to lay down a number of clinical criteria by which carcinoma of the stomach may be differentiated from simple ulcer, it may be said that in individuals of appropriate age nothing except satisfactory Röngten ray examination is sufficient to exclude it: there are rare cases in which only histology can do so. Nevertheless, given adequate radiological help, there should be no difficulty in promptly distinguishing the majority of cases of carcinoma of the stomach as soon as the patient seeks advice, and mercifully it is a relatively uncommon

disease. (It is, however, not encouraging to realise that in nearly six years of busy hospital practice, I have not seen a single patient with carcinoma of the stomach whose life has been usefully prolonged by surgery.)

SILENT BLEEDING

Gastric ulcer is an important cause of hypochromic anæmia. It is true that most patients with ulcer have pain, and that the presence of an ulcer is therefore not likely to be overlooked; it is also true that if gastric analysis shows a complete achlorhydria in patients whose only symptoms are those of anæmia, iron deficiency is the likely cause. But it is safest to assume, until proof to the contrary is forthcoming, that (1) a patient with achlorhydria and long-standing indigestion, whatever the age, and (2) a symptomless patient who has anæmia with free hydrochloric acid in the stomach, both have gastric or duodenal ulceration. It is in any case a serious mistake to treat any patient for anæmia without both blood count and gastric analysis, and even the absence of a positive benzidine reaction in the stools does not warrant the assumption, in either of the two eventualities cited, that no ulcer is present. I have seen cases misdiagnosed for months as Banti's disease or Witts's anæmia, and even the label of petit mal attached to a man who had had several attacks of fainting from periodic loss of blood from an ulcer which had not caused other symptoms severe enough for him to complain of them. Experience also, and not imagination, prompts the warning that "hæmorrhagic diathesis" and "gastrostaxis" are *probably* the result of a bleeding-point in the base of a chronic ulcer. Diffuse oozing of blood from the gastric mucous membrane has been seen both at operation and post-mortem; thrombosis of the splenic vein can cause it. But a clinical assumption that gastric hæmorrhage has originated in this way is scarcely justifiable.

In general, local tenderness, as ordinarily tested, is an extremely unreliable sign of ulcer. The radiologist may elicit tenderness when the clinician does not, since the ward examination is made in bed, without knowledge as to the site of the ulcer, whereas the radiologist has his patient standing, with the stomach more accessible, and can direct his finger to the exact point where he sees the barium clinging to the ulcer base: under such conditions the presence or absence of tenderness can be, especially on repeated examination, a good indication as of the state of healing.

GASTRIC ANALYSIS

The fractional test-meal rarely if ever makes a diagnosis, but it can provide useful confirmatory evidence. In gastric ulcer the highest value for free acid in the fractional test-meal scarcely ever exceeds 0·2 per cent., and it may be completely absent from all specimens (2 cases in a series of 39 proved cases of gastric ulcer). It is frequently over 0·3 per cent. when duodenal ulcer is present, and I have never seen complete achlorhydria with duodenal ulcer, although several specimens, and not necessarily the early ones, may show no acid.

The presence of blood is very significant, and it is never safe to assume, unless repeated examination later shows a complete absence of blood, that hæmorrhage, even in minute amount, is traumatic. Similarly, a positive benzidine reaction in the stools should always be taken as evidence of bleeding: in my experience it is unnecessary to get the subject of the test to abstain from meat, fish, or vegetables in order to avoid "false positives": I have on several occasions tested the point by asking a normal person to take a milk diet, successively adding greens, fish, and meat to the diet, and have never found the test become positive.

HEALING

The rapidity with which the X ray shadow of an ulcer crater may disappear, under favourable conditions, is astonishing. Ulcers known to have been present at the same site for ten years will disappear in half that number of weeks. It has been questioned (see, for example, Rehfuss, 1927) whether the disappearance of X ray crater shadows can be accepted as conclusive evidence of healing, but even if one discounts the initial rapid diminution in size as due merely to the disappearance of local muscle spasm, there can still be followed the narrowing of the residual pit to a V-shaped depression, and its ultimate disappearance, coincident with the disappearance of blood from the stools and tenderness on deep palpation. There seems no reason to doubt that the ulcer has healed; whether or no it remains so is not so obvious.

The accompanying tracings of ulcer craters taken from the radiograms of some of these cases are records of the actual time taken for chronic ulcers to disappear; they are drawn from films taken by the same radiologist, with the same technique, and give largest dimensions of the ulcer as it appeared in the films.

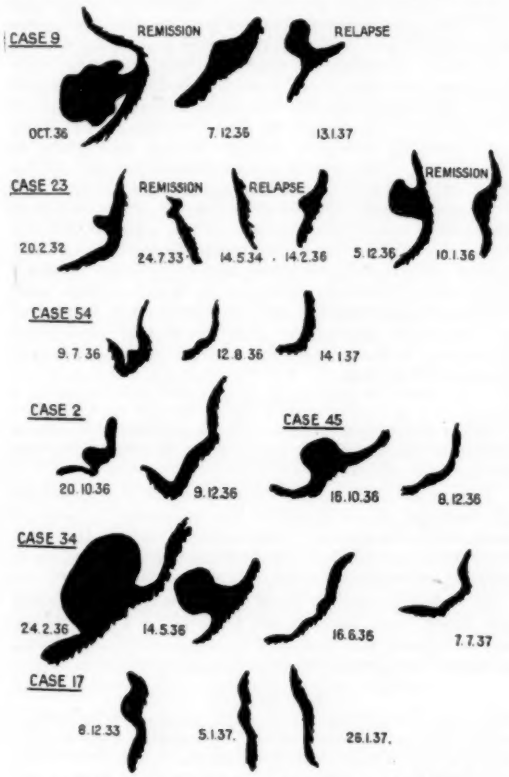
Neither age nor sex appeared, in this small series, to be factors of importance for healing except in so far as older patients tended to have larger and more chronic ulcers (there were, however, two patients whose *first symptoms* appeared after the age of 70). Of very great interest are those cases, fortunately rare, in which, while treatment is still being applied, an initial rapid healing is followed by some retrogression, as in Cases 9 and 23 figured below. In the latter case, recurrence of symptoms coincided with retrogressive changes in the radiogram and both with an attack of acute rheumatism. While more spectacular pictures of healing are obtained with gastric than with duodenal ulcers, on account of their greater size, and while the general tendency is certainly for more rapid progress to be made in the gastric cases, some remarkably quick cures have been seen in patients with duodenal ulcer. Rehfuss regards residual duodenal deformity as evidence of incomplete healing, but post-mortem and surgical experience show that the scar of a chronic healed ulcer can produce it, and clinical evidence seems to point to the same conclusion.

Absence of pain, of discomfort, of nausea and vomiting, of local tenderness, of blood from the stools: none of these things can be taken as evidence of complete healing. Six cases in this group had no blood in the stools when repeatedly examined, *during the whole period of observation in hospital*, and it is a common experience to find X ray evidence of an ulcer still present after the benzidine reaction has changed from positive to negative. From the observations of Faber (1935) it is certain that the gastric wall is permanently diseased in many cases before ulcer develops, and it is the obvious duty of clinicians to discover what are the factors which predispose to the breaking down of the mucous membrane and what to its healing. One set of factors may quite possibly be the reverse of the other.

THE SITE OF THE ULCER

Although the opinions expressed in this paper have been formed over a period of many years, the cases actually under review number only 58, and represent rather less than a single year's experience from

the wards under my care at Selly Oak, a year during which X ray coöperation has been exceptionally good. Gastric ulcers were almost twice as common as duodenal, a finding which is contrary to the usually accepted incidence, stated by various authors to be D.U. : G.U. = 3 or 4 : 1 (Osler and Macrae, 4 : 1; Rehfuss, 3 : 1 or 4 : 1; Shelton Horsley, at least 4 : 1; Crohn, "several" duodenal ulcers to every gastric ulcer). I wish to call attention to this discrepancy, since, although the number of cases reviewed is not large, it is as large as the number of cases upon which most of these estimates were based, and the probability of finding fortuitously, in my unselected



Tracings from X ray films of healing gastric ulcers.

series, twice as many gastric as duodenal ulcers, if the true incidence in the general population is D.U. : G.U. = 4 : 1, is one in many hundred thousands. The probability is still exceedingly small if the incidence is taken as D.U. : G.U. = 1 : 1.

For myself, I think the explanation is that while careful radiography gives the site incidence in an unselected group of cases, standard text-book estimates are founded on surgical experience, and perforation, the common indication for interference, is much more common in duodenal than in gastric ulcer (D.U. : G.U. = 9 : 1, according to Maingot's "Post-graduate Surgery"). The incidence found in my series of cases can hardly be due to the easier recognition of gastric than duodenal ulcer by radiography, since out of 58 clinically suggestive cases, only 3 were left undetermined by X rays. Before surgical intervention was common, gastric ulcer was reckoned to be frequent, and the occurrence of duodenal ulcer barely recognised. It is possible that some patients who attended my clinic or were admitted to my wards during the period under review were suffering from ulcer, but have not appeared in this review owing to lack of evidence on which to base a diagnosis, but the risk of their numbers being large enough to upset conclusions, based on the belief that all cases of ulcer seen are included, is small. By the nature of the symptoms it is improbable that chronic ulcers were missed, and acute ulcers, being all the more likely to be the site of hæmorrhage, would be brought to notice when the stools were examined.

This is not a mere academic point. Several facts suggest that the site of the ulcer may have some bearing on ætiology: duodenal ulcer occurs at an earlier age, is more common among men than women, and seems to be immune from carcinomatous change; duodenal ulcer occurs with equal frequency among poor and rich, but gastric ulcer is twice as common among the poor.

TREATMENT

Certain facts must be kept in mind in attempting to assay any special line of treatment or in drawing conclusions as to ætiology from its apparent success:

(1) Healing undoubtedly takes place quite often in a gastric ulcer without the patient having been either put to bed or ordered any special treatment beyond advice as to diet. (This latter *may*, of course, be an all-important point, but it is not the *obvious* factor, since healed cases may have been given very different diets; there is, however, one factor in common in almost all systems of gastric ulcer dieting—i.e., milk.)

(2) Healing usually takes place more quickly in hospital than at home, even if good conditions, including rest in bed, are employed at home.

(3) Pain from *gastric* ulcer disappears almost immediately if the patient goes to bed, no matter what diet is taken (excluding, however, gross indiscretions).

(4) Cases frequently occur in which healing does *not* take place, or in which healing occurs, but is followed by recurrence of ulceration, notwithstanding prolonged rest in bed and milk diet.

(5) Alkalis and bismuth, while appearing to relieve the pain of duodenal ulcer, are powerless per se to effect a cure, and have no effect either on the symptoms or the size of the lesion in gastric ulcer.

If these facts are remembered, there is at present no evidence that any special line of treatment, such as injections of histidine, has any influence upon the course of the disease, nor has there yet appeared any account of the conditions under which ulcer develops, which can pretend to implicate any special set of circumstances.

Gastric ulcer is known to be common among all classes, and a study of the type of work performed by the men in the present series yields no information of apparent significance: the work ranged from the purely sedentary to navvying. It is possible that hurry, stress, and anxiety all play a part, but no close association has as yet been described as existing between, e.g., ulcer and anxiety states.

The nature of the diet seems, on the face of it, a very promising line of inquiry. It is already known that mere trauma can continue for a lifetime without causing ulceration; what other factors can be involved? McCarrison is quoted by Rehfuss (1927) as having suggested the possibility of vitamin deficiency, and there are many things to make diet deficiency plausible as a working hypothesis. Thus a long period of unemployment has preceded symptoms in several of my cases, the onset of symptoms coinciding with a return to work. It might account for the class difference in mortality from gastric

ulcer shown in the Registrar-General's Decennial Supplement. The one factor common to every type of treatment employed is a diet which includes a high proportion of milk, butter, and fish. Gastric ulcer is notoriously a disease of remissions and relapses such as are characteristic of several deficiency diseases.

It has at all events seemed to me wise to give all patients with ulcer of stomach or duodenum large doses of vitamin A because of the evidence of its great importance in the life and growth of epithelial tissues, and because we are ignorant as to the optimum intake. Patients have been rested and have taken a simple diet with a high proportion of first-class protein, but no other treatment has been given beyond paraffin as required for constipation and if requested by the patient, and iron when there is anæmia. It is under these conditions that very rapid healing of ulcers has taken place. That unwise therapeutic limitation of diet may be a cause of delay in healing is very likely: it is already known to have given rise to iron-deficiency anæmia, and one patient in this series, who, when he was admitted to hospital, was known to have had an ulcer for ten years, was proud of the fact that he had, according to his doctor's reputed instructions, lived during the whole of that time without fresh fruit, vegetables, or meat. I have seen another case in which a severe polyneuritis leading to permanent disability developed after a very prolonged abstinence from meat and fish.

Specific factors apart, all patients with ulcer who have anything less than the full 100 per cent. of hæmoglobin require a supply of iron in addition to their diet: neglect of this factor in treatment may delay cure of anæmia for many weeks, although all hæmorrhage may have ceased. *Provided adequate precautions are observed*, there can be no question that the risks to a partially exsanguinated patient, even on those rare occasions on which it is possible to be certain that all bleeding has stopped, of death from infection in an open hospital ward, or from exhaustion or further loss of blood, are much greater than the possible ill effects of blood transfusion. Personal experience has made me very sceptical of the theory that transfusions of 20 ounces of blood are prone to provoke further hæmorrhage, or to harm the patient in any way. Pygott (1937) points out that in reported cases of death following blood transfusion when blood incompatibility has been excluded, there is reason to believe that the heart or vessels have always been diseased, and that no death has been reported as following the immense numbers of transfusions carried out for hæmorrhage.

SURGERY

My experience of surgical remedies for gastric and duodenal ulcer has been uniformly unfavourable. Particularly does one dread the patient with an ulcer, whether gastric or duodenal, for which any form of short-circuit operation has been performed. Even symptomatic improvement is very difficult to obtain in such cases once symptoms have recurred, and one is strongly inclined to attribute initial improvement and subsequent freedom from symptoms, following gastro-enterostomy, to factors other than the surgical operation. Although greater caution is now exercised by surgeons in their selection of cases, and the fashion for wholesale short-circuit and excision operations is mercifully on the wane, it is still common enough for a surgeon to consider himself entitled or even obliged to interfere when the diagnosis of chronic ulcer is made. Shelton Horsley, for example, states, "an operation on a gastric ulcer should not long be delayed."

In view of the obvious ease with which cure can almost always be obtained by perfectly safe means, operation for *excision* of ulcers is, in my opinion, entirely unjustifiable. Initial mortality is great, and the evidence for subsequent freedom from symptoms unsatisfactory, unless, as is sometimes the case, *real attention is paid for years to "medical" treatment* after operation. The removal of such a bulk of tissue, often including that part of the stomach concerned in the manufacture of the hæmatinic principle, is an added danger to the patient.

One is not even entirely convinced that the appreciable mortality, even in expert hands and with local "splanchnic anæsthesia," warrants operations for hour-glass deformities and pyloric stenosis unless they are so gross as to exclude the possibility of safe remedies making a tolerable life possible. My impression is that every case in which X rays disclose such deformity should be given several months of "medical" treatment—i.e., rest, physiological diet, and possibly stomach lavage—before operation is considered. The whole of the deformity seen at the first examination is not necessarily permanent.

If one excludes (as recent controversy and personal experience surely entitles one to do) gastrectomy for hæmatemesis as being anything more than a last resort after repeated transfusions have failed to keep pace with bleeding, perforation remains the sole ordinary indication for surgical interference in gastric or duodenal ulceration, and, with the knowledge available, this complication should already be less frequent than it is.

SUMMARY

1. X ray examination of 58 consecutive cases, clinically diagnosed as peptic ulcer, demonstrated the ulcer crater in 55.

2. Gastric ulcer in this series was twice as common as duodenal (a reversal of the commonly accepted proportional incidence). Reasons are given for thinking that the older estimates of incidence were based on a surgical selection of cases.

3. Ulcers known to have been present for at least ten years have been shown to heal in a few weeks under certain conditions, the significance of which, as regards ætiology and treatment, is discussed.

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ST. BARTHOLOMEW'S HOSPITAL, LONDON.—The governors of this hospital have under consideration a scheme for the erection on a site adjoining the hospital of a special ward block financially independent of the hospital but which would be able to call upon the special services of a large general hospital. This block would be open to persons with incomes of between £250 and £500 whom the hospital by its charter is at present debarred from helping. It is anticipated that the new block would be ultimately self-supporting but a capital sum of about £120,000 would have to be found for the building and equipment. No appeal is at present being made to the public but those interested may obtain further information from Sir Gordon Campbell at the hospital.

TUBERCULOSIS IN WILD VOLES

By A. Q. Wells, D.M. Oxon.*
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(*From the Sir William Dunn School of Pathology*)

Griffith (1930) states that tuberculosis in warm-blooded animals living wholly in the wild state is unknown. The object of this paper is briefly to report a widespread occurrence of tuberculosis in voles —*Microtus agrestis*. These animals are subject to a cycle of population, increasing over a period of three to four years and then decreasing suddenly to a low figure in one or two months (Elton et al. 1935, Findlay and Middleton 1934, Elton et al. MS. (in preparation)).

The possibility of this sudden decrease being due to epidemic disease has been the subject of my investigation, of which this is a preliminary report.

For the past twelve months the field service of the Bureau of Animal Population in the University of Oxford has enabled me to examine voles, both dead and alive, from areas in Scotland, Wales, and England which are uncultivated and fenced off from domestic animals. The Bureau, after much experiment, has established a system of live trapping and transport of the voles to the laboratory, where they have been kept in isolated cages.

On Jan. 29th, 1937, a vole died which had been in the laboratory for a little over one month. The post-mortem examination showed caseous areas throughout the subcutaneous tissues of the body, involving the glands of the neck, axillæ, inguinal region, and back, with ulceration of the skin round the right pinna; both lungs contained caseous areas with sharply defined edges; the mediastinal and mesenteric glands were much enlarged and caseous; the spleen was enlarged. The caseous material in the subcutaneous tissues contained a very large number of acid-fast bacilli, which have the morphology of *Mycobacterium tuberculosis*. The caseous areas in the lungs similarly contained a great number of acid-fast bacilli, but there was in section very little cellular reaction. Cultures made from the caseous material yielded no growth on nutrient agar, but growth was visible after six weeks on Dorset's egg and Petroff's medium. The nature of the growth and the morphology of the organism were similar to that of *Mycobacterium tuberculosis*.

An emulsion of caseous material from several voles similarly infected has been injected, either subcutaneously or intraperitoneally, into laboratory bred voles, guinea-pigs, and rabbits. The disease has been reproduced in the voles with death of the animals; three guinea-pigs have died with widespread disease of the organs, in which acid-fast bacilli are present; large local lesions have occurred in the rabbits, without so far causing death. All the guinea-pigs and rabbits have become reactors to tuberculin in about one month after inoculation.

Since February, 1937, 134 voles have been found with macroscopic tuberculous lesions, in which acid-fast bacilli have been demonstrated. These have been sent from seven different stations in the British Isles. Ninety-two of these infected voles have arrived dead or have been killed on arrival. There is, therefore, no doubt that the infection has occurred in the field and not in the laboratory.

Although some facts about the bacterium in question are not yet known, it seems highly probable that it is *Mycobacterium tuberculosis*. If it proves to be so several points of interest arise. The existence of tuberculosis in wild animals may have some importance in the spread of the disease to man and domestic animals; the use in the laboratory of an animal which naturally contracts the disease may be preferable to the use of the animals, used hitherto, which are not known to have the disease in nature; and the fact that a small animal, easily maintained and bred in captivity here, is available for epidemiological study may throw some fresh light on tuberculosis.

The organism is being typed by Dr. A. Stanley Griffith of the Field Laboratories, University of Cambridge. I am indebted to him for his advice.

* Working with a part-time grant from the Medical Research Council.

SUMMARY

The presence of disease, presumed to be tuberculosis, in wild voles is reported. The fact that the disease is widespread in the British Isles suggests that this is not a chance infection.

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AUTOSEROTHERAPY FOR DRUG ADDICTION

By Margaret Vivian, L.S.A.

Drug addicts have long been the *bêtes noires* of the medical profession, and it is common knowledge that a long-standing case is an almost hopeless proposition when treated by the ordinary methods of gradual withdrawal or sudden deprivation. In the past I have tried to help many of these unhappy people. Many of them insisted on leaving the nursing-home while still needing small doses of morphia, and of those that endured to the end, the majority sooner or later relapsed because they found themselves unable to cope with their daily work without their accustomed stimulant. These patients are usually the victims of circumstance, and I am glad to be able now to record greater success in their treatment.

The method used (autoserotherapy) consists in the hypodermic injection of fluid obtained from blisters raised by applying irritant plaster to the patient's skin, the amount injected being usually 5–10 c.cm. at a time. In the treatment of drug addiction this method was first described, I believe, by Modinos of Alexandria in 1929, but I did not see his paper until some years later. He records that he was treating some arthritic patients by autoserotherapy and that one of them, who chanced to be a cocaine addict, lost his craving after the first two injections—an event that led Modinos to try the same procedure in cases of morphine and heroin addiction. I have now used it in 8 cases and will give brief accounts of all of them.

THE CASES

Case 1.—Dr. A. had been taking 3–4 grains of morphia a day for two years. He had tried the gradual withdrawal method and had laboriously got down to a little under gr. 2 a day, but had failed to reduce the dose any further. He was very anxious to be cured and came to me for treatment in June, 1934. After the second blister-fluid injection three days later, he felt no further desire for the drug, and he went home at the end of a fortnight, although I begged him to stay another week. This was my first case, and I was as astonished as the patient at the remarkable result. He has never relapsed.

CASE 2.—Dr. B. had been taking 4–5 grains of morphia daily for about five years. He had three blister-fluid injections and needed no morphia after the second. The only difficulty in this case was insomnia, but at the end of three weeks he was sleeping naturally and felt no desire for morphia. I have lost sight of this case and do not know whether he has relapsed.

CASE 3.—Dr. C. had been taking morphia on and off for the last twenty years, and had taken as much as 20 grains a day. Had been "cured" several times, but always relapsed because he felt ill and depressed after the gradual withdrawal. He needed no morphia after the second blister-fluid injection, but had so strong a desire for a hypodermic injection that I gave him Dionin gr. ¼ t.d.s., filling up the bottle each time with the equivalent amount of water. When I told him that he had had no morphia for ten days, he ceased to ask for the injections, and left the home after being there three weeks. I have not heard from him since.

CASE 4.—Dr. D. had been taking 3–4 grains of morphia a day for eight years, having started it after an operation for gall-stones. Later he developed attacks of pseudo-angina, but his supplies of Dangerous Drugs Act drugs were stopped by the Home Office, and he was obliged to seek help in order to be set free from his addiction. He was a difficult patient, threatening to commit suicide unless he could be assured of a supply of morphia for the rest of his life. He had four blister-fluid injections, and insomnia was the only difficulty. Finally he left at the end of four weeks, sleeping fairly well with an occasional tablet of Dial at night. I saw him six months later, when he was in good health, had no desire for morphia, and slept well without any sedative. His anginal attacks had ceased. Recently a Home Office official, when writing about another patient, volunteered the information that Dr. D. is now in excellent health and free of any drug addiction. It is eighteen months since he left the home.

CASE 5.—Dr. E. was a medical missionary who considered it very wrong to take drugs and had tried very hard to cure himself, but without success. He had been taking about 3 grains of morphia by the mouth daily for seven or eight years, and suffered from persistent constipation. After the second blister-fluid injection he had no further desire for morphia. Dionin tided him over the first few nights, when he had difficulty in getting to sleep, and at the end of eighteen days he left the home, sleeping and eating normally. I heard from him three months later, and he assured me that he had no desire for drugs.

CASE 6.—Dr. F. had been addicted to drugs for about fifteen years. His daily dose when he came to me was 20–30 grains of morphia, 10 grains of cocaine, and a bottle and a half of whisky. Like most addicts, he had fortified himself with enormous doses the day he arrived, and his first request was for a tumblerful of neat whisky. It seemed a hopeless kind of case, especially in view of the fact that he had been treated a year earlier at a home for inebriates, where it took three months to get him entirely free of drugs. On leaving the home he had remained free for six months although in practice and dispensing his own medicines. What was in his favour was that he seemed genuinely anxious to be cured. After the first 10 c.cm. of blister fluid Dr. F. slept and ate well and made no complaint on a daily dose of morphia gr. 2 during the first three days. No whisky was given or desired after the first day, and no cocaine was given at any time.

Three days later a further 10 c.cm. of fluid was injected. For a few days he still wanted hypodermic injections, and asked for them at the usual times, but after the second blister-fluid injection, dionin gr. ¼ was substituted for the morphia without his knowledge. He made no complaint of needing morphia, but had very little sleep the first two nights, even after heavy doses of one or other of the barbiturates. The next night he still seemed excited and sleepless, and so I asked Dr. H. J. A. Simmons to give him an intravenous injection of Sodium Evipan to ensure a good night's rest. He injected the solution very slowly, giving 20 c.cm. in all, and while Dr. F. was in the early stage of anæsthesia we gave him strong and repeated suggestions that he should in future sleep without the aid of drugs or spirits. He had about six hours' sleep, and the sodium evipan in decreasing doses was repeated for a further two nights. Thereafter Dr. F. slept 6½–8 hours every night without sedative. A third blister-fluid injection was given on the tenth day, and from this time onwards the patient declared that he had no need or desire for drugs or spirits. At first he was easily tired and felt disinclined for any exertion, mental or physical, but this symptom disappeared rapidly, and when he left the home at the end of the third week he looked and felt a perfectly fit man.

In view of his past history with the long addiction and heavy dosage, the patient's relatives and I begged him not to return immediately to his work. But nothing that we could say would stop him. He declared that he felt perfectly safe and that under no circumstances would he be tempted to relapse. His wife, however, tells me that he is now taking the same heavy doses as before.

CASE 7.—Mr. G. had become addicted about two years previously through being given hypodermic injections of morphia when suffering from renal colic. He had had various methods of treatment but had always relapsed. He professed a great desire to be set free from his addiction because of the increasing difficulty in obtaining supplies. The result of three blister-fluid injections was similar to that observed in the other cases. He had no withdrawal symptoms, and had three nights' excellent sleep after the morphia had been discontinued. He ate well and was in excellent health when disaster supervened. One Sunday morning he asked if he might go out alone, saying that he felt that a walk would do him good. Feeling reasonably sure that as a non-medical man he would find it impossible to obtain supplies of morphia in the town, I agreed. I learned later in the day that he had gone straight to a hotel where he had booked a room and summoned a doctor, to whom he simulated renal colic so successfully as to get an injection of a quarter of a grain of morphia. The procedure was repeated with another medical man, who was similarly deceived, but on hearing from the landlord that a doctor had already been called in, he became suspicious and rang up the first doctor, who in turn communicated with me. When Mr. G. returned late in the evening, tired but pleased with his cleverness, I taxed him with having obtained morphia by false pretences. At first he denied it, but when he saw that I knew what had happened, he took the next train home. He is, I fear, one of the cases that are quite hopeless, for he admitted that he was in no need of the drug when he took all this trouble to obtain it. It is impossible to change a man's character, and the relapse does not alter the fact that he was cured of all physical need for morphia within a fortnight.

CASE 8.—Dr. H. had taken a daily dose of 2 grains of morphia for the past nine years. Recently he had substituted heroin for the morphia and was anxious to be free of his addiction because of an increasing fatiguability, and also because he found it difficult to obtain supplies without arousing the suspicion of his chemist. He feared that sooner or later he might get into trouble with the authorities. I immediately replaced the heroin by morphia, as I have found that heroin is far more difficult to withdraw by the ordinary methods than is morphia. Dr. H.'s recovery was uninterrupted and uneventful. After the second blister-fluid injection he no longer needed morphia, and a few doses of dionin tided him over the customary period of insomnia. He left the home at the end of three weeks in perfect health, and he was wise enough to take my advice and promised to keep away from medical practice until he had been away for six months' holiday. Since then a fortnight has elapsed and he has written saying that he is steadily improving in health and has no desire for any drug.

COMMENT

I hope that these brief notes may induce some of my colleagues to try autoserotherapy in similar cases. It does not perform miracles, but it obviates the usual distressing withdrawal symptoms, such as diarrhœa, restlessness, anorexia, and sneezing, and removes the physical need for the drug within two or three weeks. Naturally, if the patient elects to

return to his addiction after he has been freed from the physical need, nothing will prevent him from doing so.

In obtaining the fluid I find two, or even three or four, small blisters—e.g., 1½ in. square—preferable to one large one, because they heal more readily. The fluid is withdrawn before the plaster is removed and reinjected immediately, causing no pain or reaction of any kind.

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EPILOIA WITH ASSOCIATED TUMOURS OF THE NAIL-BEDS

BY STANLEY G. JAMES, M.B. Sydney, M.R.C.P. Lond., D.P.M.

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EPILOIA is the name given by Sherlock (1911) to a clinical syndrome which consists of mental deficiency, epilepsy, and a condition of the skin known as adenoma sebaceum. Associated with this syndrome is the condition of nodular or tuberose sclerosis of the brain. According to Tredgold (1929) and others, these four conditions, mental deficiency, epilepsy, adenoma sebaceum, and tuberose sclerosis, occur independently of each other and without anything else, but the presence of the first three together implies the existence of the fourth, and the whole warrants wider recognition as a clinical and pathological entity.

CLINICAL PICTURE

Elliott (1936) has recently described a case of Pringle's disease (adenoma sebaceum) with associated tumours of the nail-beds of the toes, and from a subsequent discussion it appeared that this association, although exceedingly rare, is not unknown. The case which is here recorded is one of epiloia in which the adenoma sebaceum is associated with tumours of the nail-beds of the toes as in Elliott's case, and also of the fingers. The epiloia is also unusual in that there is mental deficiency with dangerous and violent propensities.

Epiloia is a relatively rare condition. Brushfield and Wyatt (1926) found it in 0·66 per cent. of admissions of mentally defective children to the Fountain Hospital. It is present from birth. A neuropathic heredity can usually be made out and blood-relations with atypical nævi and hyperkeratosis have been described. The mental deficiency is usually pronounced, the lower grades, imbecility and idiocy, being most commonly encountered. The epileptic fits begin at a very early age and are usually of the major variety. Most of the patients die before reaching adult age, but this also applies to low grade defectives in general.

THE BRAIN LESION

Sclerosis of the brain associated with mental deficiency occurs in two forms, the diffuse, which may be hypertrophic or atrophic, and the nodular or tuberose. The former may be accompanied by epileptic fits, but does not enter into the syndrome of epiloia. Tuberose sclerosis was first described by Bourneville (1880) and a number of cases have since been recorded. The following are some of the authors: Sailer (1898), Tredgold (1903), Dobson (1906), Vogt (1908), Fowler and Carnegie Dickson (1910), Bonfilia (1910), Weygandt (1921), Kufs (1913), Brushfield and Wyatt (1926), and Critchley and Earl (1932). These forms of sclerosis are disorders of development which are present at birth and there are various theories as to their cause. Some writers favour a vascular origin, some an inflammatory, and others a neoplastic process, but the majority go no further than developmental anomaly. The sclerosis consists of a neuroglial proliferation which forms tumour masses. In the diffuse form the masses involve the grey and the white matter, but in the tuberose form they are circumscribed tumours and are confined to the grey matter of the cerebral cortex, the basal ganglia, and the retina. In the last situation, the tumour, known as a phakoma, affords direct clinical evidence of the condition of the brain, but unfortunately it is extremely rare. The brain tumours are found in the cortex and projecting into the lateral ventricles, usually in large numbers. They are pale, rounded bodies, varying in size from a pin's head to a walnut. The consistency is firm even to stony hardness, and in the cortical situation the pia strips more readily from the tumour than from the normal tissue. Central umbilication may occur, and cystic degeneration and calcification. Microscopically, the masses are seen to be composed of glial fibres and large abnormal glial cells, with degenerating glial and nerve-cells and myelinated fibres intermingled. There may be thickening of the meninges in the neighbourhood of the tumours.

FIG. 1.—Photograph showing the white eyebrow on the right side, and the adenoma sebaceum.

THE SKIN LESION

Adenoma sebaceum is a papular eruption of the skin. Sequeira (1927) refers to three types: in the first the tumours are pale (Balzer), in the second they are pink (Pringle 1890), and in the third the skin is warty (Hallopeau and Leredde). The eruption consists of neoplasms of the sebaceous glands, the pink colour of the second type being due to overgrowth of the capillary vessels, and the third variety resulting from the addition of hyperkeratosis. The tumours are present at birth, and at puberty there is either an increase or a diminution in their growth. They are closely set and vary in size from a pin's head to a pea. All three types may be present in the same case. The commonest site is the face, beginning in the naso-labial folds and spreading to the nose and cheeks in a butterfly pattern. The pink variety is usually confined to this situation but the others may be found on the forehead, chin, neck, trunk, and limbs. Additional lesions of the skin may also occur and particular mention has been made of cutaneous horns, vascular nævi, vitiligo, white hair in the eyebrows, pigmented and hairy moles, and patches of fibromata on the trunk, but there is little reference to papillomata of the nail-beds.

Apart from these skin conditions tuberose sclerosis may be accompanied by tumours in the kidneys, heart, liver, duodenum, spleen, thyroid, thymus, stomach, and uterus, in that order of frequency. For the most part they are myomata, and are not recognisable during life.

CLINICAL REPORT

The patient was a single woman aged 33. The records state that she suffered from epilepsy, the fits beginning when she was a baby and continuing until the age of 8.

She left school while in Standard III. She stole her mother's jewellery, sold it, and sent the money in a plain envelope to a friend abroad. The police arrested her as being a person found without visible means of support and she was certified as mentally defective and sent to an institution at the age of 17. She remained continuously in institutions from that time until, at the age of 28, she was sent to Rampton State Institution in 1931. Her propensities as noted in the other institutions were that she was suspicious, unstable, difficult to manage, hostile, violent, influenced others to their detriment, and finally made a violent assault on another patient. She says that she has had warts on her face, body, fingers, and toes as long as she can remember.

FIG. 2.—Filiform papillomata and chronic paronychia around the finger-nails.

FIRST ADMISSION (1931)

Physical state.—Height 5 ft. 8½ in., weight 12 st. 4 lb. Eyes grey, hair auburn. The right eyebrow and the inner half of the right upper eyelashes are white. Palate high and arched. There was generalised adenoma sebaceum with typical "butterfly" distribution on the face, and patches on the trunk and limbs. Numerous warts were present also and there was keratinisation of the finger and toe-nails. Apart from some facial asymmetry the other systems were normal.

Mental state.—Feeble-minded. She was childish in manner, with limited reasoning power and defective mental capacity. Her mental age was below the average for her age. She stated that she had a bad temper which she did not try to control. She was said to be difficult to manage and to be violent and dangerous.

Subsequent progress.—A few days after admission she was noted to be hostile in manner and attitude, and she stated that she would knock out the first person who interfered with her. She worked in the laundry in a careless fashion and was usually somewhat depressed. She resented her removal to Rampton and did not realise that she had done anything wrong in the previous institution. She gave no particular trouble except that on one occasion she tore up her bedclothes. Her explanation of this was that she was unsettled because the other girls had made remarks about her personal appearance. Fifteen months after her admission she was sent back to the certified institution, but failed to maintain her progress and was again admitted to Rampton three months later.

SECOND ADMISSION (1933)

Physical state.—The previous findings were confirmed, the warts being more fully described as filiform papillomata at the roots of the nails of the fingers and toes. Her general health and condition were moderate.

Mental state.—Unaltered.

Further progress.—She developed an isolated personality, more solitary and silent than before, objecting quietly to ordinary routine. Six months later she became irritable, insolent, and troublesome and needed to be secluded. She attacked the staff when reproved for making a noise. There has been nothing further of note beyond the occurrence of an undoubted epileptic fit, ten months ago.

PRESENT CONDITION

The hair.—A considerable number of white hairs are present on the scalp, contrasting sharply with the general auburn hue. The hairs of the right eyebrow and the inner half of the upper eyelashes on the right side are quite white and contrast with the remainder (Fig. 1).

The filiform papillomata.—These have given rise to some pain and discomfort and the larger ones have become abraded with secondary infection and hæmorrhage. This condition has been treated from time to time by various means, including silver nitrate and tinct. benzoin co., with the result that the appearance of the papillomata is now modified. Those surrounding the finger-nails have practically disappeared and there is a condition of chronic paronychia in their place (Fig. 2). On the toes they have mostly lost their filiform shape and are more rounded (Fig. 3). Patches of small fibromata are also present on the axillary folds and on the neck.

Adenoma sebaceum.—The appearance on the face is typical of the Pringle type (Fig. 1). The tumours are distributed on the cheeks on either side of the nose in butterfly fashion, some being situated on the nose as well, and a few scattered on the lips and chin. They are numerous and their size is variable, the largest being 7 mm. across. The greater part of their bulk is projected above the surface of the skin, their surfaces are smooth and their colour either pink or red. In the other situations, on the neck, trunk, and limbs, the appearance of the adenomata is quite different. They are much larger, up to 2 cm. across, and somewhat resemble the shrivelled skins of white grapes. They hardly project above the surface and may be felt more easily than seen. Their colour does not differ much from that of the surrounding skin.

The *other systems* show no abnormality. The ocular fundi are normal and the urine contains no red blood-corpuscles. The mental state is unchanged.

COMMENTARY

The outstanding point of interest in the case is the occurrence of fibromata of the nail-beds. Fibromata in other parts are common in epiloia, as also are the patches of white hair. Emphasis may be laid on the "grape-skin" type of adenomata occurring on the trunk and limbs. These tumours are liable to be mistaken for scars following burns or other injuries, but careful palpation reveals their true nature. I have seen a case of mental deficiency with epilepsy not recognised as epiloia, in which there were several "grape-skin" adenomata in the skin over the scapulæ, but no tumours on the face. The patient died in status epilepticus and a post-mortem examination revealed the presence of tuberose sclerosis of the brain.

FIG. 3.—Papillomata on toes.

It is to be noted that epiloia does occur with high grades as well as with low grades of mental deficiency. The defect of intelligence is not necessarily obvious and may be overlooked unless attention is paid to the point. Further, the epilepsy may be unknown to the patient or even deliberately concealed. In the case here reported, the history of fits up to the age of eight is rather vague and the diagnosis could not be made with certainty until the typical seizure was observed.

No treatment is known to be of avail in epiloia but the diagnosis of the condition is important in that the expectation of life is thereby considerably reduced.

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(*Continued at foot of opposite page*)

NUTRITIONAL RETROBULBAR NEURITIS

FOLLOWED BY PARTIAL OPTIC ATROPHY

By D. Fitzgerald Moore, M.R.C.S. Eng.

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In 1934 I published a report, which included a summary of earlier findings, on retrobulbar neuritis followed by partial atrophy due to avitaminosis. The essential symptoms were shown to be defective vision associated with active symptoms or a past history of a sore tongue and sore mouth, a scaly, itching scrotum, and mental and other nervous manifestations.

CLINICAL PICTURE

The history of these patients is quite definite. Vision that has been perfectly normal becomes suddenly misty and there is much difficulty or inability in seeing clearly at a distance and in reading print. There is photophobia in bright light. The patient invariably has or has had one or more attacks of sore tongue, white patches at the edges of the lips, and dry, scaly itchy scrotum. These skin lesions vary in intensity; usually the tongue looks raw, and the edges of the lips are only slightly cracked, the genital skin being smooth and dry. In worse cases these lesions are intense as shown in the Figures. Additionally linear skin lesions may appear on the skin in front of the arms and at the back of the knees. In school-children these lesions are frequently passed unnoticed and their cause is not recognised, particularly as they tend to improve in holiday time—that is, on return to natural home conditions.

Examination of the eyes reveals no changes externally. In early cases there are few or no fundus changes, but very definite changes appear later, usually about two months after the first onset. After the first onset of symptoms there is a definite pallor of the disc, more extreme on the temporal side; in severer and more advanced cases the disc appears typically that of a primary optic atrophy, almost dead white with thin vessels and greyish retinæ. Some very bad cases may also show a true optic neuritis with post-neuritic changes. The effect on vision is profound and, if untreated, lasting, even up to an inability to see hand movements. I have met boys at school who *listen* to their teachers because they can no longer see to read. All the evidence, however, goes to prove that total blindness does not occur, though the patient may be rendered totally unemployable by virtue of his defect.

The optic nerve changes appear to be a direct result of an acute involvement at the onset of the syndrome, and its severity is demonstrable in time by the resultant optic nerve changes. The optic nerve condition is therefore a partial post-optic atrophy following retrobulbar neuritis.

The mouth and other skin lesions are not necessarily seen unless the patient is in an early or recurrent stage of the disease, probably because he returns home—to good food—on account of his illness. These skin lesions are, however, always a precursor to or concurrent with the first eye symptoms.

Stannus (1911) observed similar skin conditions on the Gold Coast and has always maintained that these were pellagrinous. Scott (1918) described an acute, mostly fatal, epidemic in Jamaica among the coolie workers in the cane plantations. Sore mouth and tongue, defective vision, and severe nervous involvement were the main features. Recovered cases showed "residual eye symptoms, high steppage gait, &c." There is reason to believe this acute condition has definite points in common with the syndrome I describe, though a fatal termination here is unknown. More recently Meagher (1936) appears to have described a similar acute epidemic in the Solomon Islands termed "epidemic stomatitis." In 1926 Wright described in Sierra Leone a disease which he later (1930) termed the A and B avitaminosis of Sierra Leone. The symptomatology is identical with this syndrome. St. John (1936) finds an identical condition in the Barbados. He agrees in detail with the cause of defective vision being due to a retrobulbar neuritis followed by partial optic atrophy. Landor and Pallister (1935) reported cases of identical type in Malaya, and believe the condition to be a world-wide one. In reference to myself they state "he came to the conclusion the disease was due to lack of vitamin B_2 and we think this syndrome must be very near identical with ours. . . . In a recent paper however he blames particular foods also, such as kassava, especially for the defective vision." They agree the ophthalmic defect is a retrobulbar neuritis followed by partial optic atrophy. Recently attention has been drawn to a similar condition in Jamaica by Clark (1937) by a pamphlet on malnutrition as a cause of retrobulbar neuritis in children; and by Dickenson (1937) optic atrophy in children; also in Gold Coast by Purcell (1937). Nicholls (1935) describes a syndrome in Ceylon which is identical in some respects, but in which there seems also to be xerophthalmia. "Tongue sprue in natives" (Manson-Bahr 1915), similar in definition, appeared to have a dietetic cause.

ÆTIOLOGY

The disease itself is curable with Marmite alone or with yeast alone, the skin lesions by autoclaved products, and the eye lesions probably so. Landor and Pallister have proved that liver, marmite, and both autoclaved marmite and yeast are all successful. Their experiments definitely established that the skin and mouth conditions were dramatically amenable to vitamin-B_2 therapy. The visual symptoms were shown to respond in the course of time to liver, marmite, and yeast; on the other hand cod-liver oil and fruit juice as controls had no effect on any lesion.

In 1934 cases were quoted in my report showing satisfactory results of treatment. This was given in a combined form—marmite, a teaspoonful three times daily, with cod-liver oil, half an ounce daily, a standard iron tonic, and native palm wine. It was shown that ophthalmological response was excellent in early cases and up to six months, quite dramatic end-results being obtained. Usually response began three weeks after treatment and improvement was maintained up to a vision of a smaller Snellen line in a fortnight in the most favourable cases, even if they had gross loss of acuity of vision; on the other hand patients with longer history, usually over a year, responded less and less according to the time since the onset of the disease. This was largely in keeping with clinical findings, though there were surprising exceptions in some apparently bad cases. I believe, however,

(*Continued from previous page*)

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that absolute cure is not possible; cases seeing only hand movements may improve to 6/6 vision, but there is difficulty in sustained reading of small print, the pupil also appearing to react slowly to light, and photophobia to a slight degree in bright light remains.

This combined treatment was not enough to establish directly the specific cause, and at this stage I believed that it lay between pellagra itself and vitamin-B_1 deficiency, plus the probable addition of a toxic factor. During 1935 and 1936 I have carried out as far as local circumstances permitted selective therapy as suggested by Landor and Pallister. Response to marmite, yeast, or autoclaved dried yeast agree fully with their findings. Over 200 selected patients were treated for a period up to 10 months with yeast or marmite alone—the majority with marmite owing to its more stable properties. All skin conditions cleared up rapidly, and the visual response was entirely in keeping with results formerly obtained. Unfortunately I was only able, owing to local difficulties, to use autoclaved dried yeast in 8 cases, which I specially selected for their skin lesions, and treated for a very short time; results here were dramatic. Thus it has not been possible yet for me to prove therapeutically that ophthalmological response is due to vitamin-B treatment exclusively, but other general evidence is so strong that I believe this certainly to be only awaiting confirmation in this respect.

To demonstrate the ophthalmological response to marmite I quote a fairly severe and typical case from my records.

A young negro, aged about 19, was seen in July, 1935. Vision was then 4/60 : 4/60; he was unable to read. Discs showed well-marked atrophic changes. He had a history of one year of sore tongue and mouth, an itching, scaly scrotum, and defective vision. When seen he still had active skin lesions; he had had to leave school because of his defective vision, and latterly had become quite unemployable in any capacity owing to this increasing defect. He was given marmite ½ oz. daily for a period of nearly 10 months. His vision had improved in six months to 6/18 : 6/12 part, and remained so till I went on leave in November, 1936. The skin condition had cleared up entirely within a fortnight. The whole outlook of this boy is now changed; he is employable, bright, and active mentally, whereas when first seen he was dull and morose.

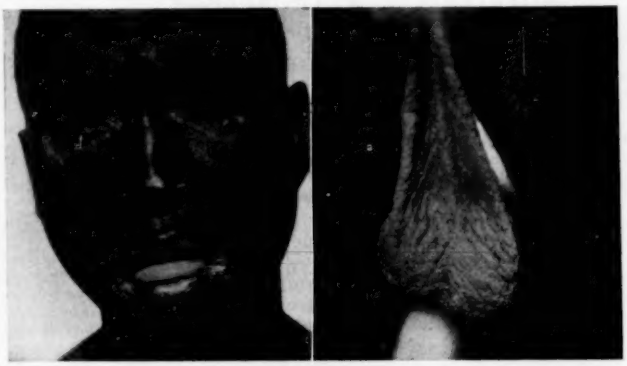

FIG. 1.—Photographs showing the condition of the face and of the skin of scrotum and buttocks.

The second case illustrates the dramatic effect of marmite on the skin lesions.

A Mende boy from Sierra Leone was brought off an Italian ship by one of the officers who had noted his peculiar gait and appearance. It was possible to keep him only ten days as the ship was leaving port. He was treated by my colleague G. E. Dodds whose notes are as follows. Patient a Mende, aged 30, normal stature, striking facial appearance. Skin dull and rough with symmetrical patches of epithelium round eyes and angles of mouth (Fig. 1). Tongue smooth, thickened, pale, slightly denuded of epithelium. Scrotum dry, rugose, and desquamating. Mentally he is slow but able to give his history. Skin condition was present three years, hands and feet "humbugging" him for some months. Defective vision three years, getting worse, 4/60 : 5/60. Illiterate. Severe optic neuritis and post-atrophic changes in discs. Knee-jerks absent, very ataxic. Kahn test negative. Given marmite ¾ oz. daily.

Figs. 1 and 2 show the remarkable effect in ten days on the skin lesions.

The syndrome is also prevented by adequate proteins of higher biological value. This is demonstrable in prisons in Southern Nigeria, since a carefully controlled and adequately balanced dietary is insisted upon and this syndrome is relatively unknown. On the other hand in institutions where food may not be balanced, particularly in essential proteins, a rate of 10 per cent. and over has been observed, quite frequently.

Perhaps this point is best illustrated at a certain school specially visited by me on account of many cases of defective vision, a number of girls having had to leave school. The school was in an isolated area and consisted of 80 pupils about half of whom were boys. All the girls showed well-marked evidence of this syndrome but not one of the boys, whose bright shiny faces showed their good health. All food was brought by canoe twice weekly and distributed equally to both sexes. It was seriously deficient in proteins. Further inquiry showed that the boys augmented their diet daily by the simple expedient of catching and roasting the land crabs that existed in countless numbers in the vicinity. This was not permissible to the girls, who were kept in strict seclusion.

Xerophthalmia, the classical accepted clinical result of vitamin-A deficiency,

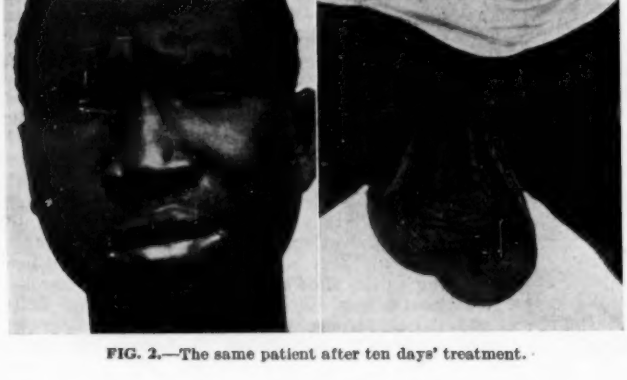

FIG. 2.—The same patient after ten days' treatment.

has not been observed once in all the cases I have seen, now amounting to some thousands. This is not surprising since palm oil, shown by Prof. J. C. Drummond to be rich in vitamin A, is a basic food of these people.

INCIDENCE

There are thousands of these cases, some mild, many severe. I have seen patients with histories dating back many years who are permanently defective in vision. Some of these patients are now quite old and their history traceable to their old school days, the passage of time showing they have got neither better nor worse. I have seen many others whose vision has made them quite unemployable. Some of these are young adolescents and literates and their condition is a tragedy. The onus of defective vision is greater on the literate classes and has thus been specially noticeable in schools. Even so all classes are affected, including pregnant women and even very young children.

RELATION TO DIET

The dietary of the Southern Nigerian peoples consists of palm oil, kassava, yams, rice, green leaves of various kinds, local or imported dried fish, salt, pepper, and maize, and various fruits in season. Eggs though plentiful are not eaten. There are practically no cattle, and milk is not available in the South owing to the prevalence of tsetse fly. Meat is expensive and a rare luxury to the poor. Tinned milk is popular when it can be afforded. The sea coasts abound in fish but all such indigenous trade is controlled by Africans. There seems little doubt protein foodstuffs afford the missing protective link in this country and their gradual introduction by educational propaganda offers the solution to the prevention of this syndrome. It would be useless to discourage suspect basic foods, such as manioc, which have been in use for so many generations.

In Barbados St. John reports that rice, cornflower, sweet potatoes, locally made biscuit, salt pork dried or with butter for flavouring, are usually eaten. Eggs and green vegetables they sell rather than eat. Kassava they also eat though not as much as formerly. In Scott's polyneuritis cases the diet was almost entirely sugar cane.

TOXIC FACTORS

Clark, who also spent 18 months in Nigeria and saw many of these cases with me, believes that cyanogen-bearing foodstuffs, such as sugar cane, manioc (kassava), guinea corn, rice, millet, and maize, are by virtue of that content responsible for pellagra in the absence of adequate protective proteins. He believes the essential sulphur of the proteins is eliminated by the cyanogens to form cyanates and that sulphur therefore plays an important part in pellagra. There is much clinically to support the presence of a toxic element, plus a deficiency as shown by co-relationship to other diseases. There are wide variations in both from true pellagra itself. It is not without interest that Clark informs me from Egypt that he sees many of these pellagrinous cases identical in nature to this syndrome side by side with classical true pellagrins.

I have to thank Sir Walter Johnson, late director of medical services, Nigeria, and Dr. A. Selwyn Clark, deputy director health services, for their interest and encouragement. I am also indebted to Dr. A. Clark, who showed such keen interest in this work during his visit to Nigeria, to Mr. E. Arthur for the preparation of autoclaved dried yeast, and to Mr. G. Duckworth and Mr. P. Phillips for the photographs.

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Clinical and Laboratory Notes

UNUSUAL CASE OF CHOKING

By S. Sharman, M.B. Glasg.

ASSISTANT MEDICAL OFFICER, MAPPERLEY HOSPITAL, NOTTINGHAM

A woman of 37, a certified patient with dementia præcox, was breakfasting with other patients.

At 8.15 A.M. she suddenly jumped up and hurried to the lavatory (followed by the nurse-in-charge), where she tried to cough and vomit, but merely brought up a little saliva. She then walked to the door leading to the ward-garden (about 30 yards) and said to the nurse "let me out, I want air." A few minutes later she began to turn bluish, her respirations became gasping; the nurse passed a probang and then brought her back into the ward, the patient walking with support. The patient was helped on to a bed, where after a few moments she collapsed. Seen by me a few minutes later, she was ashen-grey, pulseless, and appeared to be dying from syncope rather than from asphyxia. Her respirations continued (5 per minute) but gradually, despite cardiac stimulants which did not bring back the pulse, they ceased, and she died at 8.45 A.M.

Post-mortem examination showed none of the usual signs of death from asphyxia except that there were a few crumbs of the pudding in the trachea and a slight congestion of that organ. There was some congestion of the lower lobes of the lungs, but the upper lobes were normal. The heart was enlarged, the myocardium flabby and pale, and there were signs of fatty degeneration in both ventricles. There was marked atheroma of the aorta, affecting the mouth of the coronary arteries. The whole length of the œsophagus was filled with black pudding, and a piece of the skin of that food pressed against the posterior aspect of the larynx, though it did not obstruct the airway.

In death from choking "the heart beats continue a minute or two longer after the respiratory movements have stopped" (Peterson, Haines, and Webster 1903).—In the present case, the entry of air into the

lungs could be clearly heard for some time after the heart sounds were gone.

"Where death is due to cardiac inhibition, the usual post-mortem findings do not obtain, but these cases are usually characterised by death occurring with extreme rapidity" (Peterson and others, Mann 1922).—In this case death occurred thirty minutes after the first onset of the choking, during which time the patient walked about and spoke a few words.

"The impaction of a bolus in the œsophagus caused death from asphyxia by pressure on the trachea in two of my cases" (Smith 1931).—My patient certainly had a large bolus of food in the œsophagus, which may have pressed upon the trachea, but the post-mortem findings were more consistent with syncope than asphyxia.

"Foreign bodies may by irritation induce a reflex spasm of the vocal cords leading to closure; or the mere presence of such an irritation may reflexly cause syncope, irrespective of the size or character of the substance" (Peterson and others).

In this case it appears that the patient had an attack of choking but managed to free the airway sufficiently to enable her to walk some distance and to speak; that a second obstruction occurred (part of the black-pudding skin acting as a valve at that time, or by a reflex closure of glottis due to pressure from the filled œsophagus?); that this also was dislodged or overcome; and then, while air was entering the lungs, that the diseased heart went into syncope, reflexly initiated. At the inquest a verdict was returned that the patient died from syncope due to shock caused by choking.

I am indebted to Dr. G. L. Brunton, medical superintendent, for permission to publish this case.

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EXTRA-UTERINE PREGNANCY

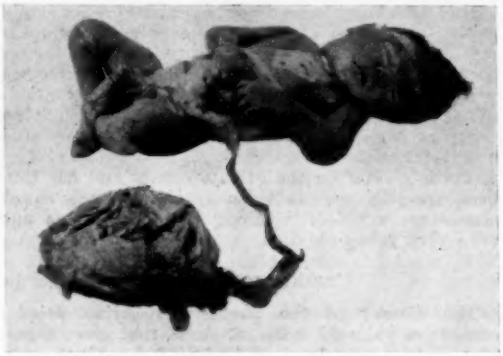
AN UNUSUAL CASE

By R. R. D. KARKI-PAHWA, M.B. St. And., L.M. Rotunda

A WOMAN, aged 41, was admitted to the Lady Emerson Seth Chaturbhuj Maternity Home, Amritsar, on Feb. 21st, 1937, with a very large abdominal tumour which was diagnosed as ovarian cyst. For confirmation she was twice sent to the Civil Hospital, Amritsar, for radiography, but unfortunately the plant there was out of order and no skiagram could be taken.

She had had amenorrhœa since December, 1935, with usual signs of pregnancy such as morning-sickness. In the middle of February, 1936, she had slight vaginal bleeding which stopped after two days. In March she had acute pain in her left abdomen lasting an hour. Constipation was severe throughout and her abdomen eventually became so big that she could not get up from bed. In November, 1936, she had another attack of bleeding lasting one day for which she was treated by a *hakim*. At this time she also felt slight movements in her abdomen on the left side. When she came to the hospital she had had amenorrhœa for 14½ months. Three years before the present illness she had had one normal pregnancy and labour.

On admission there was a very large abdominal tumour full of fluid, giving a thrill. No fœtal parts could be felt, but there was a hard fixed lump on the right side of abdomen just to the right of symphysis pubis. Fœtal heart sounds could not be heard. On March 9th I opened her abdomen under chloroform. A sac with very thin walls and full of fluid came in view; it was adherent to the peritoneum all round, and while I was separating it from the surrounding tissues it burst and 14 pints of blood-stained chocolate-coloured fluid came out. Then a hand was seen on the right side just above the umbilicus, and I realised that I was dealing with a case of extra-uterine pregnancy that had gone beyond full term. All the parts of the fœtus were seen, one after the other, and the placenta was found to be adherent to the intestines and to the peritoneum covering the bladder. The fœtus was removed and the placenta was very carefully separated. The abdomen was closed, a drainage-tube was inserted, and the patient was put in the Fowler's position as soon as possible.



The fœtus and placenta.

The fœtus weighed 12 lb. and was 24 in. long; it appeared that it had been dead for some time. The placenta weighed 2 lb. and the cord was 17 in. long. The fœtus was very well formed (see Figure).

Radiography would probably have led me to make the correct diagnosis, but unfortunately that help was not available. The age of the woman accounted for her amenorrhœa, and therefore the condition was diagnosed as ovarian cyst. The acute pain which she had felt on the left side of her abdomen in March, 1936, was evidently the rupture of her left Fallopian tube, after which the fœtus planted itself on the intestines. I may add that recovery was uninterrupted and uncomplicated despite the fact that there were signs of chronic peritonitis when the abdomen was opened.

Dehradun, United Provinces, India.

ACTION OF TRYPSIN ON DIPHTHERIA TOXIN

By A. C. BRANDWIJK, M.D.
AND
A. TASMAN, Chem. D.

THE question of the preparation of protein-free antigens has come very much to the fore of late. After the successful attempts of Avery and Goebel [1] there soon appeared several communications from Topley and his co-workers [2] in which the preparation of almost protein-free antigen fractions from various strains of typhus bacteria was described. These latter antigens, which also possessed the property of stimulating the production of antibodies in animals,

appeared to be stable towards treatment with trypsin. An attempt by Stamp and Hendry[3] to apply a similar treatment to the antigen of hæmolytic streptococci was unsuccessful. The antigenic properties were lost during digestion with trypsin.

It appeared to us of interest to investigate whether or not diphtheria toxin would be stable towards the action of trypsin.

The trypsin preparation was prepared as described by Cole[4] from finely ground ox-pancreas. The alcoholic extract was freed from solid constituents by filtration and had a titre of 1 : 500[5] with centrifuged milk. This trypsin extract contained about 25 per cent. of alcohol. The diphtheria toxin had an Lf = 1/13, while the minimum lethal dose (M.L.D.) was 0·003 c.cm. 7·5 c.cm. of the trypsin solution was added to 150 c.cm. of toxin and the mixture protected against infection by the addition of a little toluene. As a control, 7·5 c.cm. of 25 per cent. alcohol were added to 150 c.cm. of the same toxin and this liquid also covered with a layer of toluene.

After being thoroughly shaken, both liquids were kept at room temperature in the dark for five days. After this period the Lf of the control toxin had diminished from 1/13 to 1/11·5, while the M.L.D. remained unchanged.

The toxin treated with trypsin showed absolutely no flocculation with antidiphtheria serum. Determinations of the M.L.D. with the product treated with trypsin were carried out as follows:

Each of three guinea-pigs were treated subcutaneously with 0·01, 0·10, and 1·00 c.cm. respectively in 4 c.cm. of saline solution. The first two animals showed no reaction whatever after the injection, while the third showed only a slight transient infiltration. This slight reaction may probably be ascribed to non-specific constituents present in the toxin. The product treated with trypsin was no longer toxic.

Thus diphtheria toxin is destroyed on treatment with trypsin. This strongly supports the hypothesis already made by many others, that diphtheria toxin is a protein, although the possibility of the toxin itself not being a protein at all, but a substance very intimately attached to protein, cannot of course be entirely excluded.

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REVIEWS AND NOTICES OF BOOKS

History of the Acute Exanthemata

By J. D. ROLLESTON, M.A., M.D., F.R.C.P., F.S.A., Medical Superintendent, Western Fever Hospital, London. London: William Heinemann (Medical Books). 1937. Pp. 114. 7*s*. 6*d*.

Dr. J. D. Rolleston's work not only fulfils one of the terms of the Trust that the FitzPatrick lectures must, after delivery before the Royal College of Physicians of London, be published as a separate book, but, as he himself notes, serves to some extent as a companion volume to his "Acute Infectious Diseases" (2nd ed., 1929). The author hopes that his book will appeal to the increasing number of readers interested in the history of medicine. Few are better able than he is to judge the extent of this increase which, it is to be hoped, includes some proportion of those still unqualified. The history of medicine for the qualified provides a study the appeal of which is unfailing; for the unqualified it should provide this and something more—a sense of perspective. A course of Trousseau and Murchison may still be recommended to the student of the acute infections in particular as a liberal education in the art of clinical observation Dr. Rolleston tells of the history of small-pox, chicken-pox, scarlet fever, measles, and German measles; enteric and typhus fevers, he thinks, are more suitably ranked in the class of continued fevers—an obvious opportunity for a second volume of which we trust the author will avail himself at some future time.

As might be expected, Dr. Rolleston gives a scholarly and most interesting historical account of the diseases he has selected, dwelling perhaps more on the clinical than on the epidemiological aspects. The retention of the term "German measles" as a lecture-title, like the old spelling "Rötheln" where this is chronologically correct, is to be regarded as logical in an historical account. From its complete omission, Dr. Rolleston evidently regards the Filatow-Dukes or "Fourth disease" as the Mrs. Harris of the acute infections, and this is now the general opinion among those qualified to express one. The cosmopolitan list of references appended to each lecture is valuable and exceptionally complete. So far as the major acute exanthemata are concerned, study of this book and the relevant references should tend to diminish the unwitting rediscoveries of clinical facts already observed and recorded by our medical ancestors.

Einführung in die Allgemeine Biochemie

By Prof. CARL OPPENHEIMER, Dr. Phil. et Med. Berlin. Leiden: A. W. Sijthoff's Uitgeversmaatschappij. N.V. 1936. Pp. 227.

THE author explains in a foreword that the book is an attempt to assist biochemistry to its rightful place by developing a general biochemistry, that is, to teach those fundamentals which are not subject to the limitations of division according to the three "Kingdoms of the World of Knowledge," but are free from any special physiological consideration. He has divided his work into sections under headings such as living matter as a chemical system, the building substances of living matter, synthesis and degradation of foodstuffs and cell matter, the chemical mechanisms of cell processes, and the thermodynamics of living matter; and he deals largely in broad generalisations.

Whether this praiseworthy effort is a success depends on at least two things: first, whether experimental biochemistry is yet advanced enough to allow of such a wealth of generalisations; and secondly, whether there exist many readers to whose taste this sort of reading is likely to appeal. We ourselves hold biochemistry to be a laborious science in which the thinkers should not be allowed to outstrip the workers, a principle which applies mainly to the biological sciences. Prof. Oppenheimer tends to evade rather than face and overcome difficulties. For instance, when he comes to a dangerous topic, such as that of carbohydrate oxidation, he says at first: "We can give here only quite a superficial picture, for the debated details are interesting only to the expert"; but later sums up a situation which

he has not really defined in the facile phrase "In principle, therefore, the vast central problem . . . is to be regarded as solved."

The student is scarcely in a position to appreciate the generalisations, whilst the lack of references would be irritating to the advanced worker who would no doubt prefer the same author's "Chemische Grundlagen der Lebensvorgänge."

The Common Neuroses—Their Treatment by Psychotherapy

Second edition. By T. A. Ross, M.D., F.R.C.P., formerly Medical Director, Cassel Hospital for Functional Nervous Disorders. London: Edward Arnold and Co. 1937. Pp. 236. 10*s*. 6*d*.

THIS book has already proved its value to the practitioner who seeks guidance in the labyrinth of symptoms which neurotic disorders present at every turn. Dr. Ross makes it clear that he could not hope to help the student to knowledge in a subject beset by theories if he were to concentrate on the difficult issues raised by these theories. The book therefore is a practical guide to the everyday problems of neurotic illness rather than a text-book on mental dynamics. Unlike other departments of medicine in which pathology, ætiology, and treatment can be clearly marked off, psychopathology and psychotherapy are closely interwoven. It has been wisely said that diagnosis in this department of medicine is only arrived at in the course of treatment when investigation runs concurrently. It is for this reason that books of this kind appear to be unsystematic. Dr. Ross is no ideologist, as his book makes clear, but he is concrete on every page and never abandons his patient to pursue a theory. There remain many matters in this volume which will not satisfy the psychopathologist with an eye for systematic study of mental dynamics. While Dr. Ross admits his debt to Freud, he does not pay 20*s*. in the pound. The reader will be grateful to him for a very valuable handbook to the psychopathology of everyday practice.

Medical Urology

By IRVIN KOLL, B.S., M.D., F.A.C.S., Attending Urologist, Michael Reese Hospital, Chicago. London: Henry Kimpton. 1937. Pp. 431. 21*s*.

THE title of this work is misleading. By the term "medical urology" most of us understand those diseases of the urinary system that come under the care of the physician rather than of the surgeon, that is to say, such conditions as nephritis. Dr. Koll, however, uses the term to imply the urology of the general medical practitioner rather than of the specialist. His book is designed to be useful to the general physician and to the medical student. It provides a general survey of the subject, and is intended to supply just that knowledge that a practitioner requires without intruding on the province of the specialist. Only those methods of examination are given which the practitioner is capable of making and only those forms of treatment described that come within his range of therapeutics. For those who want more details a bibliography is supplied.

Dr. Koll writes clearly, gives the results of his own experience, and avoids confusing his readers with rival theories. His book is well arranged and is illustrated by means of excellent diagrams and plates. The omission in a book describing methods of treatment that come within the therapeutics of the general practitioner of such subjects as the treatment of urinary infections by means of the ketogenic diet or of mandelic acid is unfortunate. Our impression is that the work will prove of greater use to medical students wishing to revise rapidly their knowledge of urology than to practitioners.

Rasse und Krankheit

By Various Authors. Edited by Dr. med. JOHANNES SCHOTTKY, Abteilungsleiter im Stabsamt des Reichsbauernführers. Munich: J. F. Lehmann. 1937. Pp. 468. Price outside Germany M.16.20.

A TREATISE on race and disease edited by a German official is likely to excite the apprehensions of a foreign reader; he may expect the virtues of "aryans" and the vices of "non-aryans" to figure prominently and rhetorically through the 468 pages. He will be agreeably disappointed. The word aryan is not to be found in the index and, with the possible exception of the concluding article by H. Wülker on racial mixture and disease, there is little if anything in the treatise which suggests political prepossessions. J. Schottky is responsible for a general introduction and the sections on race and mental disease and feeble-mindedness. O. Flössner deals with racial physiology, W. Unverricht with race and internal diseases, B. de Rudder with race and infectious diseases, G. Olpp with tropical diseases, M. Schubert with dermatology, B. Kihn with neurology, K. Beringer with metalues, F. Härtel with surgery, G. Frommolt with gynæcology and obstetrics, W. Clausen and R. Grimm with ophthalmology, H. Barth with diseases of the ear, nose, and throat, F. W. Proell with odontology, and H. Auler with cancer.

From the introduction onwards the difficulties of defining race, of distinguishing between racial and environmental influences, and, above all, of securing precise information are emphasised, perhaps even over-emphasised. de Rudder says firmly that we have no evidence at all of any fundamental differences in the reactions of different races to infectious diseases. Kihn says "it is a melancholy fact that all statistical data respecting diseases are thoroughly untrustworthy." Some of the writers make as brave a show as they can with statistical comparisons sometimes of nationalities, as when the marching paces per minute of armies are compared, sometimes of alleged races, the Nordic, the Mediterranean and so on. But practically all of them are oppressed by the cloud of doubtfulness in which things are enveloped, even if all are not so gloomy as Beringer who begins his summary with the words "and so ends our journey through the tangle of attempted solutions which overlies an apparently so simple question." Some of the writers, for instance Olpp in his article on race and tropical diseases, side-track most of the speculative questions and give a straightforward account of what used to be called geographical pathology.

The book is very well illustrated and as a text-book of geographical pathology has merits. The style of most of the writers is not unduly ponderous and, although a great majority of the references are to German writings, the authors are distinctly aware of the existence of other nations. Of course the general problem, like the particular problem which vexed Beringer, *is* overlaid with difficulties. At first it seems so simple; one does not need to be an anthropologist to be confident that, whatever may be the definition of race, we, the Chinese, the African negroes, and the Red Indians, certainly do not belong to the same race. How easy it should be to compare their reactions to disease. Then we perceive that far from being easy it is very difficult, because, among other things, we have real control

experiments only on a few simple reactions. This is so when we compare what the man in the street would call racial extremes. When we seek to compare Germans, and Frenchmen, and Englishmen, the business becomes almost fantastic. Perhaps one day some genius will show how the problem may be solved; he is not yet here.

Inhalation Anæsthesia

By ARTHUR E. GUEDEL, M.D., Assistant Clinical Professor of Surgery (Anæsthesia), University of Southern California School of Medicine. London: Macmillan and Co. 1937. Pp. 172. 10*s*. 6*d*.

Dr. Guedel says in a short preface that his little book is intended to "guide the anæsthetist up to and through his first few general anæsthesias." This slightly ambiguous sentence indicates pretty well the nature of the book. It deals with fundamental principles and makes no attempt to supply that detailed practical information which can really be satisfactorily given only direct from teacher to pupil at the operation table. Nor is the text cumbered with descriptions of apparatus. The book is in fact most interesting to read and unlike the usual small handbook in its constantly scientific outlook and endeavour to establish practice on logical scientific lines. It is more a doctrinal application of physiology to the anæsthetist's aims and activities than a text-book and it illustrates the principles which its author has found effective in the education of students. The chart of stages and planes of anæsthesia which Guedel devised and reproduces in the book was made familiar to many British anæsthetists by Dr. R. M. Waters on his last visit to this country. In the chapter headed Mechanism of Anæsthetic Requirements the author gives the best account we have come across of the relation between a patient's metabolic rate and the effect which an inhaled anæsthetic will have upon him. He supplies a logical and sensible explanation of phenomena which appear to the uninitiated peculiar and surprising. The second part of the book deals with anæsthetic accidents and here again the strictly scientific analysis of the problems presented is admirable. Throughout there are illustrative cases which are related with a dramatic intensity which is well calculated to enforce the lesson which they teach. We have but one grudge against the author, his almost inexhaustible relish in the split infinitive; many of his pages supply two or three striking examples.

Emanotherapy

By F. HOWARD HUMPHRIS, M.D. Brux., F.R.C.P. Edin., D.M.R.E. Camb., Honorary Consulting Radiologist to, and Member of, the Medical Advisory Board of St. John Clinic and Institute of Physical Medicine; and LEONARD WILLIAMS, M.D. Glasg., late Physician to the French Hospital. London: Baillière, Tindall and Cox. 1937. Pp. 188. 7*s*. 6*d*.

THE authors of this book are concerned at the confusion in the mind of the public between the use of radium and its salts as a destructive agent and the exposure of patients to what they regard as the beneficial and innocuous influence of radium emanation in small dosage. In order to mark the distinction and to dispel fears they favour the term emanotherapy for what has been called "mild radium therapy" or "radon therapy." They claim that its value, though little appreciated in this country, has been recognised by a formidable array of distinguished clinicians abroad, the list including such internationally famous names as Eiselsberg, Lorenz, Novak, Wenckebach, Sauerbruch, and Doederlein. The conditions in which emanotherapy is said to be specially indicated are gout, "goutiness," pelvic pain, salpingitis, sterility in women, psoriasis, and chronic catarrh of the respiratory organs; and the widespread uses, here cited, to which this treatment has been put by enthusiasts include mental disease, post-operative adhesions, high blood pressure, neurasthenia, tabes dorsalis, enlarged prostate, and spinal arthritis. Most of the readers of this book will remain unconvinced by the argument that the doubtless excellent results obtained by the authors and others in such various conditions depend primarily on radium emanation, whether administered by ingestion, inhalation, subcutaneous injection, insufflation, irrigation, or pulverisation. Those who want to acquaint themselves with the methods used by emanotherapists will find them set out in detail and will also be referred to many more specialised publications on the subject. The book is well produced and printed and the diagrams of apparatus including the inhalation tube partly devised by one of the authors are easy to follow.

Synopsis of Ano-Rectal Diseases

By LOUIS J. HIRSCHMAN, M.D., F.A.C.S., Professor of Proctology, Wayne University; Extra-Mural Lecturer on Proctology, Post-graduate School, Michigan. London: Henry Kimpton. 1937. Pp. 288. 15*s*.

THIS is a simple practical guide in the treatment of those minor diseases of the rectum and anus that do not require major surgical operation. Almost all the procedures described can be carried out in a well-equipped consulting-room, and for most of them the patient need not be kept in bed. None of the apparatus described is complicated or expensive, and although notes on the diagnosis of the more severe affections of the rectum and sigmoid colon are included, their treatment is not discussed. The most valuable point about the book is that the description of each form of treatment is so detailed that the reader can picture himself doing the operation. Methods of anæsthesia are particularly well described. The author himself favours caudal anæsthesia, but also advocates spinal, sacral, and infiltration methods. Inhalation anæsthesia is held to have no place in these minor operations. Some surgeons would prefer gas to infiltration anæsthesia in opening ischiorectal abscesses, but Prof. Hirschman does not mention it in this connexion. The accounts of the operations for fissure-in-ano and for the removal of piles rob them of much of their terror for the inexperienced operator. The author's special modification of the ligature treatment of piles seems to be particularly valuable in cases where hæmorrhage has so exhausted the patient that the primary consideration is to stop it with as little interference as possible. Prof. Hirschman seems to find his ligature operation more satisfactory than injection.

Preparation of the patient for rectal operations and post-operative care of the bowels are described, not in a separate chapter but as part of each procedure. Although this involves some repetition, it has a practical advantage in emphasising the importance of these stages of the treatment. The chapter on pruritus ani contains many useful prescriptions. The volume is profusely illustrated with photographs and line drawings. The author vouches for the success of all the methods of treatment included, and he deserves praise for his clear and practical exposition.

NEW INVENTIONS

A MODIFIED BRONCHOSCOPE

THE value of direct inspection of the bronchi for diagnosis or therapeusis is increasingly recognised and measures affording improved illumination and an adequate working lumen in a bronchoscope are useful because they minimise difficulties and dangers. The modifications about to be described are mostly those of other writers, but they have been assembled and combined into one instrument with the generous advice and help of Mr. Percy G. Phelps, of Messrs. Mayer and Phelps Ltd.

Fig. 1 shows the modified bronchoscope, which can be made in various lengths and calibres. It has been found that for inspection of the main bronchi a bronchoscope of 39·5 cm. by 10 mm. inside diameter is most useful; for the secondary bronchi an instrument 44·5 cm. by 8 mm. permits of an easy and well-illuminated view; whilst a tube 48 cm. by 7 mm. is used for the more distal bronchi. The tube is similar to the Jackson model save that the proximal inch is widened in the vertical axis, so that the inlet of the tube is oval; this facilitates the introduction of endoscopic instruments.

Originally the instrument was equipped solely with the dual projected lighting system as used in the Negus laryngoscopes and œsophagoscopes, and I am indebted to the patentee (Mr. R. Schranz of the Genito-Urinary Manufacturing Co., Ltd.) for permission to incorporate this system of lighting. Later it was suggested by Mr. R. Doyle, F.R.C.S., resident surgical officer at the Royal Southern Hospital, Liverpool, that the value of the bronchoscope would be enhanced if distal lighting were added; for not only would this increase the illumination for direct inspection of the bronchus, but it would also permit of the use of the Pinchin-Morlock telescopes [1] through the instrument. Fig. 2 depicts the special holder for use with these telescopes. The dual lighting system is removed and the telescope-holder is then fitted into the sockets usually occupied by the dual lighting system. Fig. 3 illustrates a telemagnifier as devised by Dr. Israel [2] in the United States. The telemagnifier gives a magnification of 3½ diameters, is light in weight, causes no respiratory obstruction, and can be focused to different distances for use with tubes of various lengths. It is mounted on two rods which are hinged at A near the points where they plug into the sockets B. These sockets are situated laterally to those for the dual lighting system at the proximal end of the bronchoscope. By means of the hinges the telemagnifier can be tilted instantly out of the field so that instrumentation through the tube can be carried out with the telemagnifier either in position or tilted up as desired.

Fig. 4 shows a special upper-lobe bronchoscope which is lighted as described above and which can be used with the telemagnifier. It is designed after the model of Dr. Vistreich [3] of New York. The dimensions of the bronchoscope are 36 cm. by 10 mm. and its distal end is cut to form a double V. At the apices of the V is hinged a small stainless-steel mirror which is sufficiently large to reflect the entire image of the orifice and proximal portion of the upper lobe bronchus. The angle of the mirror is controlled by a screw mechanism at the proximal end of the instrument which can be operated easily by the thumb. It is necessary to point out that the interpretation of the mirror image thus obtained requires some practice, but once this technique is acquired the information procured is of great interest and value.

The instruments briefly described above give excellent illumination, they possess a good working lumen, and they can be used either with distal or proximal magnification. They have been in use regularly for two years in a bronchoscopic clinic and have given satisfaction. They are made by Messrs. Mayer and Phelps Ltd., of New Cavendish-street, London, W.1.

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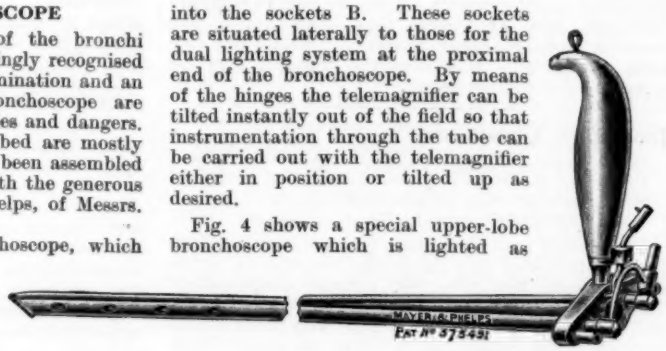


FIG. 1.

FIG. 2.

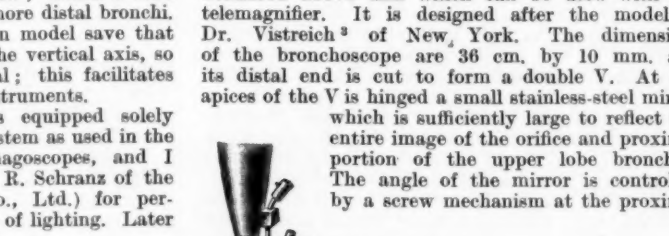


FIG. 3.

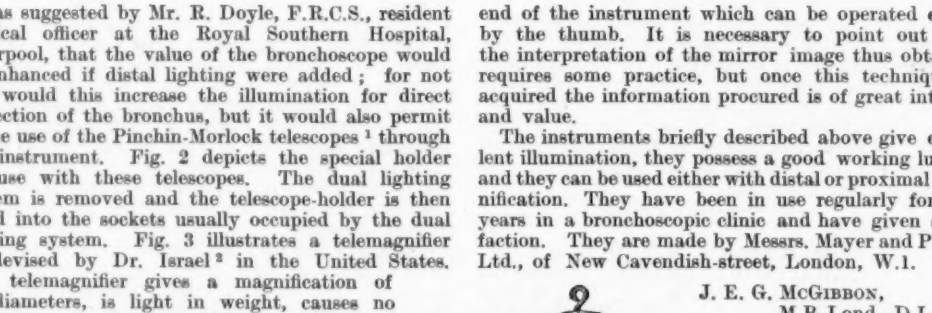


FIG. 4.

[1] Pinchin, A. J. S., and Morlock, H. V. (1932) *Lancet*, **1**, 671.
[2] Israel, S. (1935) *Ann. Otol., &c., St. Louis*, **44**, 285.
[3] Vistreich, F. (1935) *Arch. Otolaryng.* **22**, 634.

THE LANCET

LONDON: SATURDAY, MAY 22, 1937

THE LONDON BUS DISPUTE

IT is regrettable that the comfort and convenience of Londoners and their visitors should have been disturbed during the Coronation festivities by the cessation of their most important means of surface transport, but it would be wrong to take the short view that a strike of busmen was a sudden manœuvre designed to take a mean advantage of a great national event. It was the culmination of years of argument during which there had been constant complaint of stress and ill health due to speeding-up of the services as well as frequent "lightning strikes" at different garages—always against the advice of the men's union and often for apparently trivial causes. General discontent was obvious, and equally obvious was the need, in the public interest, for that discontent to be remedied.

But here comes in a new consideration. If mechanical defects had become troublesome, expert assistance would have been sought and laboratory specialists might have advised upon metallurgy or the physics and chemistry of oils, just as, we believe, experts in acoustics were called upon to deal with excessive noise in tube trains; but when the human part of the equipment showed signs of stress there seemed to be no awareness of the existence of knowledge that might be applied to the study and alleviation of that difficulty. Ever since the late war forced upon our authorities the need for study of the health and hours of munition workers, there has been carried on under the Industrial Health Research Board extensive investigation of these very problems of industrial stress and the methods of meeting it by rest-pauses, rearrangement of work, or otherwise. The results are to be found in the reports of the Board, and in addition the National Institute of Industrial Psychology, a non-official body, is at the service of employers and employed, for consultation on such matters. Yet evidence at the recent court of inquiry revealed that such questions as whether a certain trip should occupy 108 or 109 minutes, whether the extra minute should come off the men's stand-off time, and whether this was in accordance with the Board's agreement with the union, had been a matter of haggling between the drivers' representatives and those of the Transport Board and a cause of exasperation to the men in the district. The logical rights and wrongs of the points concerned are immaterial; that the human machinery was in danger of being thrown out of gear was what mattered to the public.

The recommendation of the court that an inquiry should be carried out as to the conditions of work and their effect upon the men is welcome, but the need for the recommendation arouses thought. A recommendation that similar inquiry should be made into financial or engineering difficulties, by which the convenience of the public had suffered, can scarcely be imagined, for the public rightly assumes that such matters are in the hands of experts whose business it is to deal with them; the same public has nevertheless accepted, without surprise, that a strike is necessary in order to force attention to the human part of the working equipment. We trust that the inquiry will be held, for to leave the matter to the issue of a strike is to sow the seeds of further trouble. Industrial psychology is a technical subject, and when the claim arose that the men suffered stress, physical or mental, from driving a modern bus at modern speeds through London streets, that claim called for study and, perhaps, planned experiment; certainly not for a process of bargaining carried out under the threat of a strike. If the general principle involved should come to be recognised, as a result of the present conflict, we may be saved from worse trouble in the future.

TUBERCULOSIS AMONG WILD FIELD-VOLES

MANY of the most spectacular advances in modern knowledge have taken place when specialists have been forced to look at their own subject from the standpoint of the discipline and technique of some other body's science. This fertile outcome of the interaction of the "unlike" in science is well illustrated by the announcement by Dr. A. Q. WELLS on another page of his discovery of a tuberculous-like disease among English voles. In the foot-and-mouth disease investigation a distinguished animal ecologist, Mr. CHARLES ELTON, has recently been called upon to help in pathological research; the coöperation of a pathologist has now been enlisted for the study of some of the special problems of animal ecology being undertaken at the Bureau of Animal Population at Oxford. The early outcome of this coöperation will give satisfaction to both ecologists and pathologists and is a happy augury of a fruitful partnership in the future.

The field- or meadow-vole (*Microtus agrestis*), widely known as the short-tailed field-mouse or grass-mouse (though it is no mouse), is, it will be remembered, a little rodent with a reddish-brown back and a greyish belly, about 4 inches long without its tail and possessed of a blunt head and a short disproportionate tail which looks as if it had been subjected to some untoward accident. The curious little interlacing alley-ways or "runs" it makes beneath the meadow grass must be familiar to all who know the countryside. For many years it has been known that this little mammal is subject to remarkable fluctuations in population. Even under average conditions it is very numerous in our meadows, though its caution and shyness may give the casual observer a false impression of rareness. From time to time the numbers of these animals decline rapidly and on certain occasions and in certain localities voles may almost disappear. They are staple articles of diet for

owls, rooks, and other predatory birds as well as for weasels, and vast numbers are known to be consumed by these enemies, but it has been considered probable that the marked and rapid waning of numbers is due to an epidemic disease and to this condition the name "vole plague" has been given. It is presumably while investigating this cause of mortality among voles, of the nature of which we are quite ignorant, that Dr. WELLS has been rewarded by his unexpected and interesting discovery.

The investigations are still at a very early stage, but since February in this year 134 voles have been found with the lesions of tuberculosis and in these lesions acid-fast bacilli were present resembling *Mycobacterium tuberculosis*. In at least one strain the organism has proved virulent to rabbits and guinea-pigs though it is as yet impossible to say whether the prevailing strains are to be referred to the human or to the bovine type of the bacillus. When it is considered that the field-vole is extremely common in our pastures and that many of them with open lesions must be scattering infection, the medical and hygienic possibilities of Dr. WELLS's discovery become obvious. Whether the bacilli he has found in voles are pathogenic to other animals or to man remains to be seen, but it is noteworthy that they were fatal to guinea-pigs. Obviously the contamination of areas of water-supply or of pasture used for feeding dairy herds from this source is a possibility that must at least be considered. In the meantime ecologists, pathologists, and epidemiologists will be equally impatient for further information.

The British voles present exceptional interest in respect to ecology and distribution. Not only does the field-vole suffer from "plagues" but at times, by sudden increases in its population, it becomes itself a plague to agriculture and horticulture. Ups and downs in its population are reflected by the ups and downs of owls and other predatory species; the ecologist will have to broaden his stage to make room for such a redoubtable protagonist as the tubercle bacillus and many new problems are bound to arise. Interesting possibilities open in the study of susceptibility among a number of more or less closely allied members of the vole family. Thus there are various sub-species of *Microtus agrestis* which occur upon the heights of the Highland mountains and in the different Hebridean islands and there are at least five different sub-species of the field-vole's larger cousin, the Orkney vole, which are peculiar to the different islands of the Orkneys. It will be interesting to study the incidence of the disease and the experimental susceptibility to tuberculosis of these varieties. It may be mentioned that it is generally thought that the Orkney voles (*Microtus orcadensis*) keep their numbers very steady and are not subject to the plagues which affect their relations on the mainland. Not the least instructive of the lessons of this new discovery is that the study of the parasitology of wild life, which has given up so much treasure in the past, is still an unexhausted vein.

MIDDLE-EAR DISEASE IN INFANCY

SPECIALISTS in pædiatrics and in otorhinology have during the past few years become increasingly aware of the widespread ravages of otitis media among very young children, but it is doubtful whether practitioners as a whole have yet grasped the implications of recent observations. The various contributions made to a discussion by the section of otology of the Royal Society of Medicine reported in our last issue bring out clearly the gravity of the situation. Otitis media is evidently extremely common in children under five years old; and the younger the child the more obscure are the symptoms and the more likely is the condition to be overlooked. When suppurative otitis is looked for at post-mortems on children it is very often found and the frequency of its detection in the dead body has very little relationship to the diagnosis of disease made during life. Dr. J. H. EBBS in an analysis of autopsies on 880 children mostly under two years old found post-mortem evidence of suppurative otitis in 52·8 per cent. and this incidence would be endorsed by most pathologists with wide experience of autopsies on children. It is clear that the clinical diagnosis of the disease in the young is far from satisfactory. Often there appear to have been no symptoms pointing to the ear as a seat of the trouble. Pædiatricians have called attention to the fact that the outstanding symptoms in many children are gastro-intestinal and that a label of "D. and V." or "dysentery" may be given to cases which are subsequently, sometimes too late, found to have suppurative otitis as their main lesion. According to Dr. T. RITCHIE RODGER, nearly half the cases are bilateral. And the fact that in very young children the tympanic cavity and the mastoid antrum are in such intimate anatomical relationship means that otitis almost necessarily implies mastoiditis.

An exact estimate of the contribution of purulent otitis to infant mortality has yet to be made but it is evidently a factor of considerable importance. Much more information is desirable on the bacteriology of the condition. The general opinion is that hæmolytic streptococci play a major part, but other organisms such as the pneumococci, and even intestinal bacilli, may be implicated. The rôle of the tubercle bacillus under normal conditions is small but significant; tuberculous otitis may on occasions become what amounts to an epidemic disease. Dr. R. B. LUMSDEN for example spoke of an incidence of tuberculous otitis reaching nearly 40 per cent. in a hospital near Edinburgh. In the light of this information a grave responsibility is placed upon all branches of the medical profession who are concerned with the health and welfare of children. Otorhinologist, pædiatrician, epidemiologist, pathologist, and bacteriologist must pool their experience and collect and correlate more data. In the meanwhile the practitioner must be on the alert to make an early diagnosis; an examination of the ears should be part of the routine examination of every sick child and those who are doubtful of

their ability to interpret what they find should, failing expert help, err on the side of action. Early incision of the ear-drum, it is agreed, is a first principle of treatment; and this may have to be followed later by a more radical operation.

It is, however, on the preventive side that constructive action is most urgently needed. From a consideration of general principles comes every hope that this disastrous and crippling disease of infancy is preventable; and the problem of the prevention of otitis media and its complications has been and still is largely neglected. The observations of OKELL and ELLIOTT [1] on the spread of streptococcal infection in ear, nose, and throat wards have made it abundantly clear that infection from patient to patient is a very real thing and is responsible for widespread and as yet probably only partly realised disasters. The investigations of W. A. BROWN and V. D. ALLISON, recorded in the current issue of the *Journal of Hygiene*, on cross-infection in scarlet fever wards tell the same story. The first and most pressing duty of the practitioner is to realise that otitis media, particularly when due to hæmolytic streptococci, is not only an infective but also an *infectious* condition and that it should be treated with the same precaution as any other highly contagious disease. The main difficulty of following this precept is, of course, that the source of contagion may masquerade in various clinical forms. But in cases of established local infection any carelessness or indifference that leads to its spread is a reproach to the whole profession. The limelight has now been turned on a dark corner of everyday medicine and it may be hoped that the report of the recent discussion will serve as a signal for attack from every side on this outstanding problem of child health and welfare.

CLIMATES LARGE AND SMALL

THE medical science of climate still rests on experience rather than experiment. The fashion lately has been to decry the experience, to say that all air is the same, and any locality as good as another. It is true that man can live at the Equator and (more or less) at the Poles; but the fact remains that a journey from one to the other requires physiological adjustments, and some people are sensitive enough to notice a difference even in travelling from a Yorkshire moor to a Cornish valley. Nor is this really surprising, since life, as HERBERT SPENCER put it, "is the continuous adjustment of internal relations to external relations" and even the comparatively crude data of the meteorologist and geographer teach us that our atmospheric environment varies. It varies in time, from hour to hour, according to pressure, temperature, wind, light, humidity, precipitation, and electric potential, not to mention the obscurer influences of atmospheric ionisation or cosmic rays. It varies in place, according to elevation, soil, shelter, aspect, and vegetation. Some may hold that man, provided he has an umbrella, is too hardy to bother about such trifles: he can operate a typewriter or loom equally fast in Bayswater, Brighton, and Bombay. But can he? And does it make no difference to his output whether his office or factory is at 50° F. with an open window or at 70° F. with central heating? And even if climatology, local and general, has nothing to offer the healthy, can we doubt that it has something to offer the sick, whose powers of adaptation, whose sensibility to influences good and bad, are notoriously deranged?

As a matter of fact, even those most sceptical about climatology already accept much of its teaching. None will deny for example that the activity of micro-organisms and the growth and fruiting of plants are nicely adapted to known conditions of temperature and humidity. From this it is but a step to consider, as ELSWORTH HUNTINGTON did, what is the optimum for the human species. His conclusion (which in a way supports the sceptics) was that there is not so much an optimum as an optimal range; since variation rather than stability is favourable to life, and "the uniformity of a climate is more deadly than its heat." For the development of a high civilisation HUNTINGTON demanded a mean temperature of 64° F., a relative humidity of 80 per cent., and—equally important—frequent but not excessive changes. Wind and storms are helpful, and in this respect the British Isles are fortunate, being situated between three great pressure and weather systems—the high pressures of the Azores, the Icelandic low pressures, and the continental pressures, high in summer and low in winter. But the variation must not be overdone. The unduly stimulant climate has been compared to a bad driver who exhausts his horses; whereas the ideal is a rhythmical urging and checking, preferring the voice to the whip. How much daily variation should there be in the climate of the factory? How much can be borne by the young adult with rheumatoid arthritis and what are the means round which it should vary?

In our own country the British Health Resorts Association continues its attempt to define the essential features of various localities, and its latest handbook,[1] which should be useful to every practitioner, takes another step towards scientific accuracy by providing ingenious tables summarising in a few lines the "invalid's winter" to be expected at various resorts. It is right to press for more informative meteorological records of this kind but it is even more important to assess their significance in terms of the human body. Medical climatology—if that is to be its name—must assess the powers of adaptation of the body to climatic influences in youth and old age, in health and in illness. Thus conceived it becomes an aspect of medicine which must interest all who seek the efficiency of man, and advance is possible in it from many directions. The industrial physiologist, with his "micro-climates" of laboratory

[1] Okell, C. C., and Elliott, S. D. (1936) *Lancet*, **2**, 836.

[1] British Health Resorts: Spa, Seaside, Inland; including Australia, Canada, Cyprus, New Zealand, South Africa, and British West Indies. Official Handbook of British Health Resorts Association. Edited by R. Fortescue Fox, M.D., F.R.C.P. London: J. and A. Churchill. 1937. Pp. 178. 2*s*. 6*d*.

and workshop, approaches it from one angle; the pædiatrician from another, for as BAUDOUIN [2] remarks, the faulty adaptation shown by many children should throw light on the means of defence against external stimuli and the way they can best be utilised. For many morbid states there is a "climate" which we should seek to promote, and it is almost ridiculous, for example, that at this time of day we should still be uncertain whether children with pneumonia should not after all be nursed out of doors.[3] Dr. GEORGE DAY [4] lately mentioned that he was trying to discover the effect of certain types of weather on tuberculous patients and had reached the tentative opinion that they do best when it is positively vile. Much information on such subjects has been gathered by W. F. PETERSEN in the United States and published in his "The Patient and the Weather." Hitherto it has been customary mostly to rely on impressions; but better even than the best impressions are *measurements*, and the systematic studies made during the last twenty years on non-tuberculous children in the island of Föhr [5] near Heligoland are an example of serious effort to introduce precision where it is badly needed. We may be unable to guess whether the "climate" we recommend—be it at the seaside or in a bedroom with closed windows—will benefit our patient, but we should at least try to find out what effect, if any, it has upon his bodily functions and the course of his illness. This is a part of clinical science where we want facts.

[2] Baudouin, G. (1936) *Rev. Physiothér.* **12**, 370.
[3] See, for example, Wallace, H. L. (1937) *Brit. med. J.* March 27th, p. 657.
[4] *J. State Med.* March, 1937, p. 157.
[5] Kestner, O. (1937) *Brit. med. J.* March 13th, p. 555.

ANNOTATIONS

MALARIA AND SYPHILIS

THOSE responsible for the mental hospitals of the London County Council are anxious that the opportunities afforded at Horton for the treatment of neurosyphilis and general paralysis should be better known. A special unit for the treatment of syphilis of the nervous system was established there in 1925 by the L.C.C. and Ministry of Health jointly and some 800 cases have been treated. The unit has served a second purpose, because the malariotherapy given has allowed of valuable studies of induced malaria. The methods developed by the Institute for breeding and infecting mosquitoes have been copied in other parts of Europe: Wagner-Jauregg's clinic in Vienna has adopted the Horton technique for examining blood films, and the plans of the insectarium have been reproduced in Germany, Roumania, and Holland. The research on malaria, which has attracted visitors and investigators from all parts of the world, has been made possible only by team-work. The cases have had medical care from one of the medical officers of Horton Hospital; the laboratory is in charge of Mr. P. G. Shute with two assistants; the Ministry of Health, besides giving clerical aid, have allowed Colonel S. P. James, F.R.S., to direct the malaria work and establish a research centre. Since Colonel James's recent retirement, Horton has formed a liaison with the London School of Hygiene and Tropical Medicine, and Prof. J. G. Thomson is carrying on the work. A whole-time investigator, Colonel J. A. Sinton, I.M.S., with a malaria research fellowship from the Royal Society, is now at the hospital, and we are glad to learn that another whole-time worker, Dr. E. L. Hutton, with a clerical assistant, is undertaking work from the neurosyphilitic aspect, under supervision from Dr. W. D. Nicol, the medical superintendent, who last November visited Wagner-Jauregg's clinic as well as hospitals and institutions in Germany. The records of cases already treated will furnish much good material; the incidence of syphilis in families of general paralytics is now being inquired into. The hospital is also keen to treat more and earlier cases, particularly as it is hoped that advantage will be taken of the facilities for treating patients on a voluntary basis at a stage long before the necessity for certification. In this type of case very favourable results are to be anticipated, and the duration of the patients' stay in hospital should be considerably curtailed, being in suitable cases as short as 3–4 weeks. It is hoped that the opportunities for studying neurosyphilis will attract to Horton as many inquirers as the opportunities for studying malaria have attracted during the past ten years.

SILICOSIS

OBSERVATIONS on the chemistry of some dangerous dusts made by a group of workers at the Imperial College under the leadership of Prof. H. V. A. Briscoe and summarised in two letters in *Nature* (May 1st, 1937, p. 753) may throw useful light on some of the perplexities of human silicosis. Briefly their discovery is that freshly made dust may be quite different chemically and mineralogically from the rock from which it has been derived: it quickly takes up water from damp air and readily yields alkali and soluble silica on extraction with water, much in excess of the solubility of natural quartz. The same dust when it has lain some time in contact with air is much less reactive, and this accumulated dust has often been used for experiments on animals whereas in actual practice men are of course exposed to dust immediately it has been made by rock-drilling or blasting. A natural inorganic particle is so arranged molecularly that, rather like an animal, it is coated with a relatively inert skin, and when it is mechanically broken its molecules are disarranged and it may become by comparison an active chemical agent. It has also been discovered that the solubility of silica from quartz dust is much reduced by mixing with finely divided charcoal, anthracite, ordinary coal, or lime, from which various possibilities in the way of prevention arise as well as some explanation of the difficulties about silicosis in some coal-miners.

MUSICOGENIC EPILEPSY

IT has long been known that auditory stimuli may bring on epileptic attacks, the commonest form of stimulus being a loud and unexpected noise. Music may, rarely, be a determining cause of fits, and Dr. Macdonald Critchley [1] has collected notes of 20 cases illustrating this sequence of events. Of these, 4 were under his own care, 7 were reported to him by colleagues, while the remaining 9 are

[1] *Brain*, 1937, **60**, 13.

extracted from the literature, mostly, be it noted, of Russian origin. The clinical histories show little in common, though it is worth noting that in 11 out of the 16 cases in which it is recorded the age of onset of the epilepsy was over twenty-five years. Dr. Critchley is satisfied that the fits showed the usually accepted characteristics of epilepsy, and could in no case be classed as hysterical. Often the determining factor could be exactly specified. Thus in one the music must be classical and jazz tunes were ineffective; in another it must be sad or reminiscent in quality; in another only the deep notes of a wind instrument in a brass band would cause the seizure; in another one tune only would be effective; in another only a tune that was unfamiliar; and so on. Perhaps the most interesting part of the paper is an account by a Russian man of letters, who was a sufferer from musicogenic epilepsy, of his own sensations and experiences when listening to music. In some of the cases the stimulus was specific; fits always occurred in response to the music, and never in the absence of music; but other cases lacked this specificity. In discussing the pathogenesis Dr. Critchley comes to no definite conclusions. He doubts if hyperventilation or variations in cerebral blood-supply are of much importance. He is inclined also to reject the proposition that the phenomenon is a conditioned reflex in the Pavlovian sense, but it is not clear that he has sufficient grounds for doing so. It is recognised that certain emotional states—notably fear or anxiety—may determine fits in one who is already epileptic, and surely music may induce a variety of emotional response in those who listen to it. It might be near the truth to regard musicogenic epilepsy as epilepsy in which the fits are a response to one form of emotional stimulus. Consideration of this uncommon but fascinating sequence opens up wide issues.

PERNICIOUS ANÆMIA AND LIVER THERAPY

VARIOUS attempts have been made to deduce from the recorded mortality-rates from pernicious anæmia the degree of success that has been attained with treatment by liver in various forms—success, that is, in the community as a whole rather than in the individual case. It is generally agreed that with an adequate use of liver a fatal termination may be indefinitely postponed in most instances. How far is that objective being attained? Following the introduction of liver therapy in 1926 the mortality-rate in England and Wales declined abruptly and has remained at a relatively low level, though in late years there has been some tendency for a rise to occur. P. Stocks has computed [1] that since 1926 there has been an average lengthening of life of all affected persons of about three to three and a half years. The decline in mortality has been noted in other countries—notably in New Zealand, the United States, Norway, and Canada. In Canada and particularly in Ontario the registered mortality has invariably been high, higher according to Hardisty Sellers [2] than in any other country in the world. This excess cannot, he thinks, be attributed in any large degree to differences in diagnostic acuity or to medical teaching and its influence on the certifying practice of doctors. Here too, however, there has been a dramatic reduction in mortality. In 1934 the mortality-rates of both males and females were less than half those prevailing in 1921–26. The deaths actually recorded in 1934 numbered 268, whereas if the death-rates at ages in 1921–26 had continued to prevail as many as 562 would have occurred. At ages 30–49 years the mortality in 1934 was only 22 per cent. of the rate in 1921–26, at 50–69 it was 36 per cent., but at ages over 70 years the mortality has changed relatively little, being 89 per cent. of the previous rate. This picture is best explained, as Sellers suggests, by the prolongation of life of persons affected, particularly those at the younger ages. In fact, the average age at death of persons certified as dying of pernicious anæmia was 62·1 years in 1926 and 67·7 in 1934. Allowing for the general ageing of the population the average lengthening of life since 1926 is about 5 years. This result, it must be noted, relates to all cases, treated, adequately or inadequately, and untreated. Sellers notes that it may be regarded as a "conservative estimate of the objective efficacy of modern therapy in this disease." It is some measure of the advantage reaped by the community; if treated cases alone were considered much greater improvement would doubtless be apparent.

[1] *Brit. med. J.* 1935, **1**, 1013.
[2] *Amer. J. Hyg.* March, 1937, p. 259.

THE OLD ASHMOLEAN MUSEUM

WE add to a recent suggestion in these columns that the present position of the Old Ashmolean is one calling for a sympathy that should take practical form in money. The fine Jacobean building was probably designed by Sir Christopher Wren, though it was built by one of those working masons who took a pride in their work. It faces Broad Street, is next to the new buildings of Exeter College, and is only separated by a pathway from the Sheldonian Theatre. Few know its history, fewer still of late years have entered its noble portico and finely lighted rooms. It was built at the cost of the University between 1679 and 1682 to house the collection which Elias Ashmole had obtained from John Tradescant. Ashmole was a man of many parts, solicitor, exciseman, freemason, astrologer, botanist, chemist, anatomist, physician, herald, and author of "The History of the Garter." John Tradescant, traveller and botanist, had a garden in South Lambeth, where his name is still perpetuated in Tradescant Street just off the South Lambeth Road. He collected curiosities in many countries, and Ashmole thinking them worthy of preservation added his own coins, medals, paintings, and the library of Lilly, the astrologer. He presented them to a grateful university which caused the house to be built for their reception. The museum was housed in the top floor; the middle floor was used as a school of natural history where lectures were given on chemistry, and the basement was occupied by a laboratory with furnaces and a library of books treating of chemistry. Changes took place in course of time. The books went to the Bodleian; natural history specimens were transferred to the new museums in the parks; some of the curios to the Bodleian galleries, others to the Taylorian and university galleries; chemistry was abandoned by the university and was taken care of by the colleges. The Arundelian marbles, which had long rested against the wall of the Ashmolean, found a more suitable home at the British Museum. The old Ashmolean had practically ceased to exist as a museum, and was used as a mere adjunct or store for the Bodleian and as a scriptorium for those who were preparing successive volumes of the New English Dictionary.

Then came upon the scene Mr. R. T. Gunther, LL.D., an energetic fellow of Magdalen College, who began to write on the history of science in Oxford. He soon

found that many scientific instruments, often dating from quite early times, were stored away in the various colleges, and there was enough to form a first-rate collection to which generous donors might be invited to add. The idea has already borne good fruit and the Old Ashmolean has taken on new life as a Museum of the History of Science. Its rooms are already filled with instruments, but more space and money are needed. A part of the building is occupied as a scriptorium and some little-used books belonging to the Bodleian are stored in the basement. Money is wanted to buy instruments of historic interest which can still be obtained at reasonable prices; to provide cases in which to show them and for many other purposes. Dr. Gunther issues an appeal therefore that the Old Ashmolean and its requirements may not be overlooked when the needs of the university are considered in connexion with "The Oxford University Appeal" which is now being circulated. We wish him success very heartily, for at present there is no museum recording the history of science worthy of the name in this country and Oxford is the place where it might well be established and made permanent.

ESTIMATION OF MALE FERTILITY

THE errors incidental to testing male fertility by the examination of condom specimens have long been known. It was these errors that led Dr. Max Huhner of New York to urge that examination of the condom contents should be controlled by subsequently investigating specimens taken from the cervical canal after coitus. Returning to this plea,[1] he says that supposed necrospermia has often been due to killing of the spermatozoa by some chemical used in the manufacture of the rubber sheath. In other cases the patient, wishing to keep the specimen warm until its arrival at the laboratory, has placed the container in hot water or in front of a radiator, and the spermatozoa have thus been overheated. Huhner reports cases in which the examination of many condom specimens, with all precautions, has shown that the spermatozoa have died as early as twenty minutes after coitus. Nevertheless in the same cases spermatozoa removed from the female genitalia remained active for several hours under the microscope. He therefore concludes that spermatozoa may preserve their vitality longer in the female genital secretions than in the semen itself.

MENTAL ABILITY IN A RURAL COMMUNITY

AN interesting survey of mental ability in a rural community is reported by the research department of the Royal Eastern Counties Institution, Colchester.[2] The district selected contained a population of about 1500 and included a small country town. The number of children tested, whose homes were in the district at the time of examination, was 187, but a few were missed because of illness. Of these 187 children 122, or about two-thirds of the total, belonged to one "clan," all of whose members were related by consanguinity or by marriage or by both. The children were divided into pairs according to whether they were related, connected, or unrelated, and the degree of likeness of scores between any two related individuals was compared with that degree which subsisted between any two unrelated individuals. There were altogether 276 pairs of sibs, and the correlation coefficient for them with respect to intelligence measurement was $+0{\cdot}30 \pm 0{\cdot}05$. This figure, the authors point out, is rather lower than that obtained for physical measurement of sibs by Pearson. If, in a random population, mental ability were entirely determined by hereditary factors, the correlation coefficient should lie between 0·41 and 0·50. It is inferred from the relatively low value of 0·30 that other factors besides heredity play a part in the ability to score marks in intelligence tests such as were used; at the same time the correlation is regarded as strongly significant and the investigators have little doubt that in their group brothers and sisters are more like each other than two children taken at random.

The distribution of intelligence was analysed according to paternal occupation. Four groups were distinguished under the general headings of professional men, traders, artisans, and labourers. In the intelligence of the children, there was found to be a steady gradation down these four groups. The children of unskilled labourers were found to have a mean intelligence nearly a third of the standard deviation lower than the general level. It is perhaps to be regretted that the authors did not examine the sizes of the sibships to which the children in these four groups belonged. A survey of the incidence of mental defect was also made. It included not only children but persons of all ages. A high incidence, 1·6 per cent. of the total population, was found. Commenting on the magnitude of this figure when it is compared with the corresponding figures for rural areas given in official surveys, the writers suggest that, if strict canons are observed in these investigations, a larger proportion of individuals in rural communities might be counted as defective than has been officially recognised. Mental defect and disorder were also found to occur with greater frequency in the interrelated "clan" than in the rest of the population.

FREQUENCY OF ARTIFICIAL PNEUMOTHORAX REFILLS

Franklin and his colleagues[1] are dissatisfied with the "average" practice of starting a pneumothorax with two or three daily injections and rapidly increasing the interval until air is only given twice or even once a week. This routine method is open to the theoretical objection that during the interval the lung usually expands again, and the pressure to which it is subjected is thus by no means uniform. With this in mind refills were given much more frequently than usual in a series of 65 patients (4 bilateral A.P.) treated between July, 1935, and January, 1936. In some cases air was given daily for several weeks, and the average time before satisfactory collapse of the pulmonary lesion was only 10·4 weeks compared with a previous average of 22. This meant, of course, that the patient's period of disability was much shortened. Two possible objections to the new scheme are mentioned: the first is the additional cost to the patient when the refills are not done in an institution where such treatment is included in the terms quoted; the second is the possibility that the repeated slight trauma to the pleura caused by the passage of the needle may encourage pleural effusions. Effusions developed in 16 (30 per cent.) of the 53 cases in which it was possible to induce a pneumothorax, but this figure seems no higher than that found in series treated with less frequent refills. The present paper is published only as a preliminary report and it cannot be decided whether the method

[1] *J. Obstet. Gynaec.* April, 1937, p. 334.
[2] Matthews, M. V., Newlyn, D. A., and Penrose, L. S., *Sociological Rev.* January, 1937, p. 1.

[1] Franklin, R. M., Zavod, W. A., and Percy, H. E., *Amer. Rev. Tuberc.* April, 1937, p. 513.

described really represents an advance. It does appear, however, that frequent refills give more rapid collapse of the lung and the experience so far gained does not suggest that they bring more complications.

LIPOID PNEUMONIA

IT has often been said that Nature contrives new diseases to take the place of those that medical science has controlled. It would seem, however, that Nature and science manage sometimes to work hand in hand. Thus the new disease known as lipoid pneumonia is as a rule directly attributable to the injudicious use of oily solutions injected into the nose of young infants, or to the aspiration of cod-liver oil or cream by those that are feeble or rebellious. A considerable number of deaths from this cause have been reported in America since 1925, and these probably represent only a small proportion of the whole. So serious is the condition considered that a brochure about it has been issued to the medical and nursing personnel of the department of health of the city of New York. In this Dr. C. F. Bolduan points out that lipoid pneumonia is seen principally in debilitated infants under two years of age, and in those with difficulty in breathing or swallowing. In fatal cases the repeated instillation of nasal drops has commonly been followed by repeated coughing or asthmatic attacks and the signs and symptoms of a low-grade pneumonia. Where cod-liver oil is the responsible agent, the pneumonia has usually been more acute. Although complete recovery appears possible, the pneumonia often progresses and the infant dies from intercurrent infection. Post mortem the lungs may show the presence of large amounts of oil, and changes due to reaction to a foreign body. Dr. Bolduan quotes a number of eminent pædiatricians on the inadvisability of giving oily nasal drops to young infants. Although the condition is apparently less common in this country than in America, the warning is useful.

THE BILBAO CHILDREN

THE Home Office has given permission for the landing in England of 4000 refugee children from the Basque town of Bilbao. It was stipulated that there should be 1800 boys and 2200 girls, all between five and fifteen years of age, and that they should be accompanied by 200 adult women teachers and attendants and 30 priests. The National Joint Committee for Spanish Relief, which has made the arrangements, sent two doctors and two nurses to Bilbao. The doctors were to examine the children before they went abroad to ensure that no infectious diseases that might involve lengthy quarantine periods were among them. They took medical supplies with them, since these are very scarce in Bilbao. The nurses both speak Spanish and have a supply of medical cards which will furnish a medical record for each child; they are travelling back on the ship, the Basque steamer *Habana*, which has already carried thousands of children to France. The doctors and nurses reported that they had to work very hard under considerable difficulties. Air-raids frequently interrupted the work and they were forced to do it from 8 to 12 at night, at which time there have so far been no air-raids. The *Habana* is expected at Southampton at the end of this week and the children are in the first place being put in a large camp which will serve as a clearing-station and as a quarantine camp if necessary. This has been erected at North Stoneham, near Southampton, and is in charge of an administrator with long experience of such camps. Dame Janet Campbell, M.D., has been assisting with the arrangements in Southampton and is an active member of the committee dealing with this problem. Already 2000 of the children have homes waiting for them, the Salvation Army having offered to take 400 and the Roman Catholic Schools and Homes 1200. The remainder will be accommodated in groups in homes and colonies organised by the National Joint Committee for Spanish Relief. Those who are familiar with the situation of Bilbao will hope that the committee may soon get enough support and offers of help to justify the rescue of more of the children congregated in the town. The address is 35, Marsham-street, London, S.W.1.

OPIUM ADDICTION

ADDICTION to opium or its derivatives is rare in this country, but unfortunately shows a selective incidence on the medical profession, since of 630 known addicts in 1935 about 110 were doctors.[1] One of the main difficulties encountered in its treatment is the depression, insomnia, and other distressing symptoms that accompany withdrawal, and especially rapid withdrawal, of the drug. Various means of reducing these symptoms have been tried,[2] and on p. 1221 will be found an account of the use of the patient's own serum, reinjected, for this purpose. Introduced by Modinos in 1929, the method has been gaining popularity in the Orient, and Woo [3] is able to report on no less than 1000 cases thus treated by him and his colleagues at Hong-Kong in 1936. Of these, 872 smoked opium, 46 swallowed opium pills, 11 took opium plus opium wine, 38 took opium and heroin pills, and 33 took heroin pills. He treated his cases as out-patients and no restrictions were put upon them—a severe test for any method. He gave on the average seven injections of blister fluid on alternate days with a total dosage of 18·5 c.cm. per patient. He says that after the first dose most of the patients found that they needed only half their usual dose and that the drug became definitely distasteful to them after the second or third injection. His criterion of cure was complete abstinence from the drug for a month with improvement in weight and general health, and he reports 16 per cent. of cures, while a further 18 per cent. were able to reduce their dose by nine-tenths. Only 24 per cent. showed little or no improvement. Various unpleasant symptoms appeared during treatment, the commonest being constipation, insomnia, and "spermatorrhœa." Black,[4] writing from Manchuria, says that doses as large as 10 c.cm. sometimes cause reaction and discomfort, and he therefore prefers 5 or 6 c.cm., while even 1 c.cm. has an appreciable effect. Schroeder,[5] in 1933, had trouble with burst blisters, and was led to try boiled milk as an alternative to serum. In assessing the value of these and other remedies for drug addiction we are faced with the familiar difficulty of separating the effect of suggestion from that of the actual method employed: the brilliant results of enthusiastic users of some form of therapy —especially where, as here, there is an element of the dramatic—are often followed by the comparative failure of more sceptical workers using the same method. Dr. Vivian's cases, which were treated in a nursing-home under strict supervision, showed better

[1] The Traffic in Opium and Other Dangerous Drugs. Report to the League of Nations by H.M. Government in 1935.
[2] A review of Some Recent Literature of Drug Addiction, by Dr. E. W. Adams, appears in the *Bulletin of Hygiene* for April, 1937.
[3] Woo, A. W. (1937) *Chin. med. J.* **51**, 85.
[4] Black, D. M. (1936) *Canad. med. Ass. J.* **35**, 177.
[5] Schroeder, H. (1936) *J. Amer. med. Ass.* **107**, 2150.

results than did Dr. Woo's out-patients, and it seems probable that some at least of her success was due to the belief she has acquired in the method and the steady transference of this belief. She wisely points out that "autoserotherapy" cannot cure the tendency towards drug addiction, but it will nevertheless be very useful if it enables the patient, without much discomfort, to get rid of his physical craving. Dr. Adams's conclusion [1] about it is that apparently it is "simple and reasonably successful in the case of moderate opium-smokers and eaters and does assist withdrawal considerably. It has however its limitations. It is rather painful, it may fail in severe cases and is not very successful where the drug is injected. Also, relapse seems to be as common as with any of the more usual methods."

MEDICINE AND PEACE

MANY feel that if the medical profession, as such, is to help in promoting peace it will do so best by demonstrating the emotional disorders that give rise to war and the means by which nations and individuals may be contented. The Medical Peace Campaign (whose activities are described in our correspondence columns) now has a psychological section, and its bulletin for April contains many suggestions about the kind of action that doctors may fittingly take to expose "false stimulation of the instinct of self-preservation." Those who would prefer to read a straightforward statement of one medical man's opinion on the present menacing situation will find it in a pamphlet by Dr. J. Burnett Rae.[1] He writes for the layman, and he writes at the request of a particular body, the Industrial Christian Fellowship; but many of his professional colleagues and many outside the Church will be thankful to see their scattered opinions so well expressed. Dr. Rae believes that we shall never prevent war by dwelling on its horrors or by pointing to its senselessness. War is comparable to insanity but in a psychosis even the most absurd delusion has a meaning; the symptoms are a blundering attempt at cure and adaptation. Unfortunately the nations to-day are too busy attending to their weapons, or watching those of others, to give more than academic attention to the fundamental causes of war. Dr. Rae counters the argument that primitive human communities are necessarily aggressive, and contends that the future is not with those who use their power to trample upon the weak but with those who have a care for them. If we cannot change our nature we can at least change our behaviour. The real solution is not extermination of other people's point of view but understanding of it. At the same time we must be loyal to our own ideals and make them as attractive as possible to the other type of mind. The kind of peace called "non-war" is not an end in itself: the peace we seek must be positive.

THE COLONIAL SERVICE

UNTIL recent years, in spite of some abortive attempts at unification, the colonial services consisted of a series of independent and unrelated public services attached separately to each dependency, although under the general coördinating control of the Colonial Office. In 1930 what is known as the Warren Fisher Committee made strong recommendations in favour of unification and these recommendations were approved by the Colonial Conference of that year and by the then Colonial Secretary, Lord Passfield. The history of the further developments of this policy is set out in a pamphlet (No. 475) entitled "The Colonial Service" issued by the director of recruitment at the Colonial Office. In 1932 a start was made by the creation of a unified Colonial Administrative Service with a definite membership, a common method of entry, a general system of training, and a schedule of posts to any of which a member might be appointed. Development has since proceeded by the setting up of other unified branches on a similar plan, a legal service being inaugurated in 1933, a medical service in 1934, and forest, agricultural, and veterinary services subsequently. The introduction of equivalent terms of service in all dependencies is a matter of great difficulty, as allowances must be made for the very considerable differences which exist in climate, cost of living, and the financial circumstances of the various Governments. Considerable progress has, however, been made in a number of colonies towards uniformity in regard to salary scales, pensions, provision for widows and orphans, and the granting of leave and free passages.

The medical service, which at present has some 600 members, including women, offers a wide professional scope. The majority of posts are in tropical Africa and Malaya, so recruits are usually sent for a course at one of the schools of tropical medicine before going out. Later they may concentrate on public health and preventive medicine, departmental administration, a specialty, or research, or on clinical medicine. The appointments are intended to be whole-time and members of the service must not count on being able to augment their salaries by private practice, though this is permitted in some stations. There can be no doubt, however, that in its present form the service is one which deserves the serious consideration of medical men at the beginning of their career.

ON May 25th and 27th and June 1st at 5 P.M. Dr. Edwin Bramwell will deliver the Croonian lectures of the Royal College of Physicians of London. His title will be Clinical Reflections upon Muscles, Movements, and the Motor Path.

To celebrate the fiftieth anniversary of the Bassini operation, the University of Padua is publishing two volumes of "Writings on the Surgery of Hernia" containing the original papers of Bassini and contributions to the study of hernia by surgeons in various parts of the world. The Italian Surgical Society has called for June 6th in Padua a special meeting, in the course of which, after two reports on the surgery of inguinal hernia (S. Spangaro) and on the surgery of crural hernia (A. Austoni) the various problems of hernia surgery will come under discussion. British surgeons wishing to attend are asked to write to the Clinica Chirurgica della R. Università di Padova, which will send detailed information.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.—A general medical and surgical course will be held by this association from August 16th to Sept. 10th at the Western Infirmary, the Royal Infirmary, and the special hospitals of the city. A number of clinical assistantships will also be available to graduates who wish to make a detailed study of one of the specialties. Further information may be had from the secretary of the association, Dr. James Carslaw, 9, Woodside-terrace, Glasgow, C.3.

[1] Psychology and the Problem of War. By J. Burnett Rae, M.B., hon. physician for psychological medicine, Croydon General Hospital. Published by the Industrial Christian Fellowship, 4, The Sanctuary, Westminster, London, S.W.1. Pp. 30. 3d.

SPECIAL ARTICLES

THE INFLUENCE OF ANIMAL HORMONES ON PLANTS

A REVIEW OF EXPERIMENTAL WORK

BY E. DOROTHY BRAIN, F.L.S.

THE comparatively recent discovery and isolation of plant hormones has raised the question of the relationship between plants and animal hormones and the possibility of animal hormones influencing plant growth and development and vice versa. A number of investigations along these lines have been performed.

EXPERIMENTS WITH OVARIAN FOLLICULAR HORMONES

In 1933 Schoeller stated that certain plants when treated with follicular hormone (œstrin), both in the form of Progynon and β-folliculin, showed accelerated and increased production of flowers after weekly doses of 200–300 mouse units. These experiments have since been repeated by other workers with the same species of plants in much greater numbers and their results do not seem to substantiate Schoeller's conclusions.

Harder and Störmer (1934), who repeated Schoeller's work, used 1300 bulbs of hyacinth, crocus, narcissus, and lily-of-the-valley, branches of prunus, forsythia, cornus mas, and plants of maize and arum lily. These plants were treated with pure crystalline α-folliculin and technical progynon (a preparation of Schering-Kahlbaum A.G., Berlin) in doses of 100, 200, and 300 mouse units. The hormones were administered to the roots of the bulbs in water and earth culture and to the base of cut shoots in water, agar, and lanolin paste. In spite of careful selection of samples they found great variation in the rate of opening of flowers in both treated and control plants. In arum lilies second blooms were produced in 38 per cent. of the treated plants and 58 per cent. of the controls. An acceleration of 1½ days in flowering, and slight increased growth, was noted for maize, as compared to an advance of 14 days found by Schoeller.

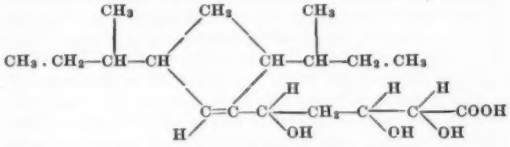
Schoeller and Goebel (1934) repeated their experiments with hyacinths, using an alkaline salt of folliculin which appeared to be more effectual in stimulating flowering than the acidic form of the hormone. Chouard (1934) treated plants of *Aster sinensis* with weekly doses of 250 international units of dihydrofolliculin crystals in solution in water. The first effects were toxic but after recovering their condition the treated plants produced more flowers than controls and flowered 8 days earlier. The treated plants were slightly shorter than controls and the inflorescences which were produced on short branches from the base of the stem were 80 per cent. more numerous.

Janot (1934 and 1935) experimented with hyacinths and lily-of-the-valley in soil and water culture. He used the hormone in the form of folliculin and dihydrofolliculin, theelol, equilene, and equilenine. All stimulated vegetative growth except theelol which was toxic. He also used solutions of hormone, made alkaline with sodium hydroxide and found them more effective. His conclusions, based on experiments with several hundred bulbs, were that inflorescence buds appeared earlier in treated plants because of increased vegetative growth but flowers did not open sooner after treatment with the hormone.

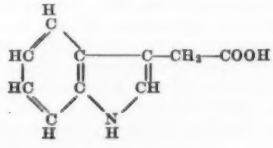
Tincker (1935) tested crystalline ketohydroxy-œstrin in alcoholic alkaline solution, and theelol in water, by injection into the stem, administration through cut petioles, presentation to the roots in soil and water and culture solution, and to cuttings in solution. His experiments with *Bryophyllum calycinum*, arum lily, and species of grass, *Berberis neubertii*, tulip, lily-of-the-valley, lettuce, and hyacinth produced no evidence that growth was accelerated by the treatment; in fact theelol retarded foliar development. Tincker also found no effect on the growth of hyacinth treated with an alkaline solution of auxin extracted from yeast. He admits the possibility that the dosage given did not reach the threshold of reaction level, but he criticises the claim of Schoeller and Goebel that flowering is stimulated by follicular hormone since, in their experimental plants, flower primordia would be laid down before the treatment began. Schoeller's results were therefore due to elongation of the flower stems, which suggests an action of follicular hormone similar to that produced by plant hormones or auxins. Janot (1935) and Harder and Störmer (1934) also held this view of the action of follicular hormone and it seems possible that Chouard's results for aster may be due to elongation of branches from buds which remain dormant normally and not to the formation of extra branches bearing flowers, as it may superficially appear. Harrow and Sherwin (1934) state: "The female hormone on the market, the commercial product, has an auxin-like effect; this is due not to theelin but to an impurity (auxin?) which, like auxin is soluble in bi-carbonate solution. Crystalline (and therefore pure) theelin has no auxin-like effect."

HUMAN URINE AS A SOURCE OF PLANT HORMONES

"Auxin" is the term used for the growth substances which are found in actively growing parts of plants and have been shown to govern cell extension which is the principal basis of the increase in volume shown in higher plants. Prof. Kögl (1933) of Utrecht, who has studied the chemistry of the auxins, has discovered that the most favourable source of "auxin-a" is human urine. Kögl states that adults excrete about 2 milligrammes of auxin-a per day, independently of age or sex. Urine excreted a few hours after a meal has the highest auxin content. Having tested various diets it was found that no increase occurred after glucose, starch, or egg-white but after feeding with salad-oil or butter increase in the auxin-a excreted follows. Kögl has shown that auxin-a is a monocyclic trihydroxycarboxylic acid with the structural formula



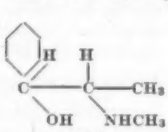
Kögl and his collaborators have prepared another growth substance from urine which they term hetero-auxin. It is β-indole acetic acid with the structural formula



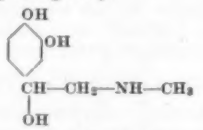
It is also prepared from yeast, aspergillus, and rhizopus and is approximately half as effective physiologically as auxin-a. The total growth substance content of urine is about 80 per cent. auxin-a and 20 per cent. hetero-auxin. So far it has not been determined if animals make use of these auxins.

PLANT EXTRACTIONS WHICH ACT LIKE ANIMAL HORMONES

Cases have been cited by Walker and Janney (1930) in which extractions of male and female catkins, sprouted oats, rhubarb leaves, and yeast produced œstrus in castrated mice. Also Skarżyński (1933) has isolated an œstrogenic substance from female willow catkins, which possessed properties identical with those of trihydroxyœstrin prepared from female urine, for solubility, absorption spectrum in the ultra-violet light, and melting-point of the acetyl derivative. The plant substance was less active physiologically, containing 1000 mouse units per mg. as compared with 4000 mouse units per mg. of the animal hormone. Butenandt and Jacobi (1933) have also isolated a substance, "tokokinin," from palm-nut oil which is chemically identical with α-folliculin, $C_{18}H_{22}O_3$, gives the same rotation for absorption spectrum in the ultra-violet light and the same physiological action. Other examples are "glukokinin," which reduces the concentration of blood-sugar in a way which is comparable to the action of insulin, and has been prepared by Collip (1933) from yeast, green leaves, and roots; and ephedrine, which is chemically related to adrenaline and behaves similarly physiologically.



Ephedrine.



Adrenaline.

It is obtained from *Ephedra vulgaris*, a Chinese plant, the stems of which have been used medicinally by the Chinese for five thousand years (Harrow and Sherwin (p. 123) 1934).

It therefore appears that plants produce substances which are analogous to animal hormones and that animal excretions can be used as a source of plant hormones, but it seems doubtful whether the animal body makes use of the auxins which are available in vegetable foods.

EXPERIMENTS WITH OTHER ANIMAL HORMONES

Corresponding botanical investigations on the possible influence of various other animal hormones on plants have been carried out in recent years. Hávás and Caldwell (1935) treated tomato plants and hyacinths with Richter's orchitic extract, Richter's Glandobulin (prolan A), Richter's Glanduatin (extract of the anterior lobe of the hypophysis) and Cortigen (extract of the suprarenal cortex), adrenaline and thyroid extract without showing any marked effect on the growth or flowering of the plants. Glandobulin had a toxic effect on tomatoes. Other workers on the effect of extract of the *anterior lobe of the hypophysis* are Hykes (1933) who found that opening of leaf buds on dormant branches of certain trees was inhibited by concentrated solution and stimulated by dilute solution of the extract, and that roots of willow and poplar cuttings were longer in the dilute solution; and di Pascal (1936) who found addition of the extract accelerated germination of seeds and that an alkaline extract solution added to nutrient solutions accelerated growth in some species and had no influence in others. Large doses caused damage to roots and inhibited growth.

For *insulin* and *adrenaline* Wasicky (1934) claims an intensification of starch-formation from d-glucose in plant cells, and Hykes (1933) found an increase in quantity and size of leaves produced on branches placed in insulin solution, which was greater in dilute solutions. He found that adrenaline in dilute solution accelerated opening of leaf buds and stimulated root growth in willow and poplar, but that concentrated solutions had an inhibitory effect.

Experiments with extract of *suprarenal cortex* have been performed by three Italian workers—de Gaetini (1929), Occhipinti (1930), and Agostini (1930)—who found that "cortical" stimulated vegetative growth and accelerated reproduction in the water plants, *Lemna minor*, *Azolla coriolana*, and marsilia.

Thyroid hormone has been tested on bulbs of hyacinth, narcissus, and allium, various species of seedlings, *Lemna minor*, plants of *Aster sinesis*, and branches of various trees. Budington (1925) noted greatly decreased length and increased thickness in roots on narcissus bulbs grown in solution of thyroid extract in water. Microscopic examination showed that the specialised tissues of the root extended nearer the tip in treated roots than controls and he suggested that the precocious development of this tissue was comparable to the precocious development produced in larval amphibia on treatment with thyroid, since new tissues in roots and larvæ both originate from unspecialised masses of tissue, the differentiation of which is stimulated by thyroid. Scaglia (1929) noted decreased mass and more rapid development of inflorescences in hyacinths treated with thyroid. Agostini (1930) found little difference in growth of *Lemna minor* or *Azolla coriolana*. Hykes (1933) showed that leaf buds opened earlier when dormant branches were placed in thyroid solution and roots developed earlier on willow and poplar branches than on controls. Chouard (1934) found that branches grew to be 25 per cent. longer than controls on plants of *Aster sinesis* treated with thyroxine in solution in water, but no influence was noted on rate of flowering. Davis (1934) treated *Pisium sativum* seedlings with sodium salt of thyroxine in water and culture solutions resulting in shorter, slightly thicker, less branched roots in treated plants but no difference in the green parts. Narcissus and allium bulbs injected with thyroxine flowered earlier but produced shorter roots and foliage. Florentin and Ehrenfeld (1935) have made microscopic examination of roots of *Allium cepa* grown in thyroxine. Less rapid growth was evident at the beginning of treatment which was accompanied by 43 per cent. more mitoses in the root cells of the treated plants, than those of controls. This is a similar effect to that described by Budington in narcissus roots. Experiments performed by me (1937) showed that *Phaseolus multiflorus* seedlings transferred from distilled water to solutions of thyroid extract containing 0·1 c.cm. per 100 c.cm. distilled water responded by marked decrease in growth in length of root. It was not considered that shoot growth was influenced. Oats and radish seedlings treated with solutions of different concentrations indicated a stimulatory effect to growth of roots and leaves in dilute solutions and an inhibitory effect in greater concentration. When using thyroid extract, in spite of careful sterilisation of vessels used, after several days solutions became contaminated with bacterial slimes and moulds. This condition was also noted by Davis for thyroxine and by Tincker for ketohydroxyœstrin.

Parathyroid hormone was used by me (1937) on oat seedlings. Doses of 2–8 Collip units resulted in shorter length and slightly thicker roots but had no effect on growth of coleoptiles and leaves. A summary of the experiments is given in the accompanying Table.

TABLE SHOWING RESULTS SUMMARISED

Hormone preparation.	Experimental plants.	Results.
Ovarian—Progynon.. α-folliculin β-folliculin	Hyacinths; lilies, bulbs; seedlings; flowering plants; branches.	Contradictory—possibly flowering accelerated; stimulated growth.
Alkaline salt of folliculin	Hyacinths.	Flowering accelerated.
Dihydrofolliculin	Hyacinths; lily-of-the-valley; *Aster sinensis*.	Stimulated growth; stimulated flowering.
Theelol .. Ketohydroxyœstrin ..	Bulbs; seedlings; cuttings.	None; toxic.
Equiline .. Equilenine ..	Hyacinths and lily-of-the-valley.	Stimulated growth; greater effect in alkaline solution.
Orchitic ..	Hyacinth.	None.
Anterior lobe of hypophysis ..	Dormant branches of trees.	Dilute solution opening of buds and growth in roots stimulated.
,, ..	Seedlings.	Stimulated germination and growth in some species.
Prolan A (glandobulin)	Tomatoes and hyacinths.	Toxic.
Insulin ..	Hyacinths.	Intensified starch formation from d-glucose.
,,	Branches of trees.	Increased quantity and size of leaves.
Adrenaline ..	Tomatoes.	None.
,,	Hyacinths.	Intensified starch formation.
,,	Branches of trees.	Accelerated opening of buds.
Suprarenal cortex—"cortigen"	Tomatoes.	None.
"cortical"	Water plants.	Stimulated growth and reproduction.
Thyroid ..	Hyacinth; narcissus; allium.	Inhibited growth in roots; stimulated mitosis in cells.
,,	Branches of trees.	Leaf buds opened earlier.
Thyroid .. Thyroxine Na salt	Seedlings.	Inhibited growth in roots.
Thyroxine Na salt	Narcissus.	Accelerated flowering.
Thyroxine ..	*Aster sinensis*.	Increased growth of stems.
Parathyroid	Seedlings.	Inhibited growth in roots.

Note.—In several cases dilute solutions stimulated growth and more concentrated solutions inhibited growth.

Consideration of the results claimed for the influence of animal hormones on plant growth and development shows that some reaction certainly occurs when plants are subjected to treatment. Whether this can be ascribed to definite response by the plant to the hormone in a similar way to the animal's response to that hormone is another matter. The results for the follicular hormone are very conflicting, but the balance of evidence seems to favour an auxin-like response of increased vegetative growth. The increased growth after treatment with the pure crystalline substance does not entirely support the theory that the auxin-like effect is due to impurity in the preparation, but the evidence for the presence of auxins in animal urine and female hormones in plant tissue makes it seem quite credible that the behaviour of both could be similar physiologically. There are insufficient data to give definite conclusions on most of the hormones, but it certainly seems as if the uniformly found effects of thyroid extract can be considered as an indication that it affects plant tissues in a way similar to animal tissues by the stimulation of cell growth by division. This is of particular interest from the botanist's point of view since there is very little definite knowledge of the influence of auxins and other substances upon cell division.

Though much work remains to be done there is already sufficient evidence that the subject is one of importance to medicine, veterinary science, and botany. In particular the possibility that the raw materials of some animal hormones may be derived from plants may have to be taken into account in interpreting the symptoms of deficiency diseases.

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MEDICINE AND THE LAW

Epilepsy and Workmen's Compensation

Martin *v.* Finch, in the Court of Appeal last month, was a workmen's compensation case in which the workman suffered from epileptic fits to the knowledge of his employer. His wife said he had fits fortnightly and sometimes weekly. He worked as a land drainer. His usual hours ended at 5.30 P.M., but on the day of his death he had been ordered to leave his work at 5 P.M. and take his tools to the field where he would be working next day. A quarter of an hour later he was found dead by the side of his bicycle near the field. The county court judge found as a fact that the workman had fallen from his bicycle in a fit. The deceased had often been attended by a doctor for injuries due to falls from his bicycle which he had to ride every day from his home about four miles away. He had been warned not to bicycle, but he had no other way of reaching his work.

The Court of Appeal agreed with the court below that the accident happened "in the course of" his employment since, at the time of his death, he was taking his tools under his master's orders to his new place of work. But the accident, to justify the award of statutory compensation, must have arisen "out

of" as well as "in the course of" the employment. In 1933, in Lander *v.* British United Shoe Co., the Court of Appeal disallowed the claim where an epileptic workman fell on a floor which was not found to be dangerous. There had been a different result in 1905 in Wicks *v.* Dowell, where a workman's duty obliged him to work close to an open hatchway. He fell into the hold below during an epileptic seizure, and there was an illuminating judgment by Lord Justice Cozens Hardy. The employers had argued that the consequences were too remote to make them liable. The truer view, said the Lord Justice, is that everybody brings with him some disability. It may be disability arising from age or some other drawback. An old man is inherently more likely to meet with an accident than a young man; but an employer could not excuse himself on that ground. The same consideration applies to a tendency to illness or fits. If a man with such a tendency is told to go to work in a dangerous position and there meets with an accident, the accident none the less arises "out of" his employment because its remote cause is to be found in his own physical condition. Applying these views of Cozens Hardy, L.J., to the recent case in the Court of Appeal, the Court took account of the facts that the workman had been carrying his tools when he fell off his bicycle and that the employer, knowing of the epilepsy, had let him go off on the bicycle. The Court concluded that it was not epilepsy alone which caused the accident, but a combination of the epileptic tendency with the fact that the dead man was placed in an unstable and dangerous position. And so the widow is held entitled to compensation.

PARIS

(FROM OUR OWN CORRESPONDENT)

A DOCTOR DE FACTO

THE age of miracles having returned, René Hecker entered the French army as an accountant and left it as a doctor. After the war he settled in Flavy-le-Martel where for some 17 years he devoted himself to the care, often gratuitous and always devoted, of the sick. Prosperity, the respect and affection of the community from the mayor downwards, and a wife and family—all these things were added unto him. Then the Nast law came into effect with its requirement that all French medical diplomas must be registered in one central office. Hecker was invited to conform to this law but could not. His credentials, such as they were, proved to be provisional—stop-gap army permits to carry on as a surgeon what time he sought original documents lost, stolen, or strayed. This spring at Saint-Quentin Hecker was prosecuted for the illegal practice of medicine, and for several days he made headline news. He was game to the last in spite of a facetious judge and an inquisitive prosecution. But the surgeons and physicians he cited as his mentors at Strasbourg in his student days lacked the flesh and blood required of a witness in a court of law; whereas the witnesses for the prosecution who testified to having known him as an accountant were disconcertingly real. To create a diversion, he rang the curtain up on his therapeutic achievements. Let but his colleagues see him operating or otherwise caring for his patients, and how could they doubt the genuineness of his claims? To which the judge retorted that the question at issue was not his therapeutic prowess but his legal rights to the title of doctor. Nothing daunted, Hecker paraded one grateful patient after another, all snatched from the jaws of death, more or less. They were all very pathetic but not quite convincing. And in due course judgment was given against the defendant who was fined 1000 francs for the illegal practice of medicine and ordered to pay 5000 francs in damages to the local medical syndicate which had prosecuted him. Still refusing defeat, he has appealed against this judgment.

VIENNA

(FROM OUR OWN CORRESPONDENT)

KLEIN, ERDHEIM, AND HALBAN

THE medical faculty of the University has lost within ten days three of its most eminent members. Prof. Solomon Klein, the Nestor among Vienna's medical men, died at the age of 92 while on a visit to Budapest. He was well known as one of the best ophthalmic surgeons of his time and as the originator of many new methods of diagnosis and treatment of diseases of the eye. He will be remembered with regret by many of the doctors from abroad who visited the ophthalmological department of the Vienna Poliklinik while he was in charge.

Prof. Jacob Erdheim, the famous pathologist, died suddenly at the age of 63. He was a pupil of Weichselbaum, who early recognised the outstanding qualities of his assistant and gave him every help in his career. Erdheim soon became interested in the branchiogenous structures. He discovered the relation between calcium metabolism, rickets, and the development of the teeth. He later began to study the pituitary gland ("Erdheim tumours"; adenomata of the pituitary; the hypophysis in pregnancy), and he was also an authority on the histopathology of bones and on the pathology of the blood-vessels. During the war he studied problems of bacteriology and hygiene. His classes were among the best attended in the University and his pupils came from all over the world, attracted by the lucid presentation of his subjects.

Prof. Josef Halban came from an old Viennese family well known in public life and he himself was intimately associated with the city all his life. He studied there, acted as assistant to Prof. Schauta, and in 1909 was appointed professor of gynæcology. In 1910 he became the director of the gynæcological and obstetrical department of the second biggest hospital in Vienna (Wiedener Krankenhaus) and he held this post until his death. A few years ago he was nearly appointed professor ordinarius of the University Clinic but at the last moment his nomination was disallowed because, like Klein and Erdheim, he was of Jewish birth. Halban was an original thinker and as long as thirty years ago he had realised the importance of the endocrine glands and had recognised the placenta as an internal secretory organ. Indeed, his intuitive and imaginative grasp of the function of the glands was the foundation of the modern conception of hormones. He collaborated with Prof. Tandler in several well-known text-books on gynæcology and obstetrics. A brilliant but cautious surgeon, he had an enormous private practice, perhaps the largest in central Europe. He was a lover of art and music and he married Selma Kurz, the singer.

THE SUPRARENALS AND ANGINA PECTORIS

At a recent meeting of the Vienna Gesellschaft der Aerzte Dr. Roab reported on a new treatment he has used in cases of angina pectoris. Noting the similarity between the symptoms of this condition and those produced by an out-pouring of adrenaline into the system, Roab thought it possible that the

attacks are usually attributable to the action of adrenaline, secreted in large quantities, on a cardiac muscle which has been injured by coronary sclerosis. (This does not of course apply to attacks of coronary thrombosis.) Accordingly he attempted to diminish artificially the output of the secretion of adrenaline, and especially its excessive secretion by fits and starts. A suitable means of inhibition was found in irradiation of the suprarenal region with X rays. A surface of 8 by 10 cm. on the right and the left side was exposed to 200 *r* on three consecutive days, 600 *r* being thus applied over each adrenal gland. (In some cases only one side was exposed daily so that the course lasted six days instead of three.) This very moderate dose nearly always sufficed, and the suggestion is made that sufferers from angina pectoris may have adrenal tissue which is abnormally sensitive to X rays, just as the thyroid gland may be hypersensitive in hyperthyroidism. Of the 17 patients carefully observed only 2 showed no improvement after the irradiation, and Roab thinks the treatment is worth trial wherever there is no contra-indication. In the ensuing discussion, Prof. Schiff pointed out that it would be really worth while to find out whether Roab's assumption—viz., that diminution of the adrenal output is responsible for the improvement—is correct. This can be done, he said, without resorting to X rays, simply by administering ergotamine which inhibits adrenal function. Dr. Scherf said he had been working on similar lines, but so far his results had not been absolutely convincing. Dr. Zimmermann was struck by the fact that only 2 of Roab's 17 patients had hypertonus, whereas as a rule half or three-quarters of angina pectoris patients have high blood pressure.

IRELAND

(FROM OUR OWN CORRESPONDENT)

RESIDENCE BAR TO MEDICAL APPOINTMENT

IT was pointed out in this column on May 8th that the regulation of the Ministry of Home Affairs of Northern Ireland rendering residence in the United Kingdom for five years a necessary qualification for appointment as a dispensary medical officer might result in the exclusion of a citizen of Northern Ireland who had obtained his medical education elsewhere than in Northern Ireland or Great Britain. This has now happened. Last month the Omagh board of guardians by a considerable majority appointed Dr. Percival G. Patton as medical officer of the Omagh No. 2 dispensary district, the appointment being subject to the approval of the Minister for Home Affairs. Dr. Patton is a native of Northern Ireland who received his medical education at the University of Dublin, and as a consequence has been resident in Dublin for the past five years. The Minister has refused to approve the appointment on the ground that by the regulation of 1935 Dr. Patton was not qualified, and the board of guardians has been compelled to proceed to a fresh election. The several qualifying bodies in the Irish Free State have, it is stated, drawn the attention of the Northern Government to the unfair discriminations imposed by the regulation against their graduates and licentiates, and pointed out that the degrees and licences granted in the Irish Free State are entitled to registration in the General Register and are recognised by the authorities of the various branches of His Majesty's Service—the Royal Navy, the Army, the Royal Air Force, and the Colonial Services. It may be added that many natives of Northern Ireland educated therein occupy important positions in the public medical and other services in the Irish Free State, and as candidates for public appointments in the Irish Free State natives of Northern Ireland compete on equal terms with their southern colleagues.

THE LANCET 100 YEARS AGO

May 27th, 1837, *p.* 345.

From a communication entitled—

GENERAL REGISTER.

WE, the undersigned President of the Royal College of Physicians, President of the Royal College of Surgeons, and Master of the Worshipful Society of Apothecaries, having authority from the several bodies whom we represent, do resolve to fulfil the intentions of the Legislature n procuring a better registration of the causes of death, being convinced that such an improved registration cannot fail to lead to a more accurate statistical account of the prevalence of particular diseases from time to time.

We pledge ourselves, therefore, to give in every instance which may fall under our care, an authentic name of the fatal disease.

And we entreat all authorized practitioners throughout the country to follow our example, and adopt the same practice, and so assist in establishing a better registration in future throughout England; for which purpose we invite them to attend to the subjoined explanatory statement, in which they will set forth the provisions of the recent statute, and the means whereby the important object we have recommended may most effectually be attained.

HENRY HALFORD,
President of the Royal College of Physicians.
ASTLEY COOPER,
President of the Royal College of Surgeons.
J. HINGESTON,
Master of the Society of Apothecaries.

From an explanatory statement which follows the letter.

. . . It is also desirable that such statement should exhibit the popular or common name of the disease, in preference to such as is known only to medical men, whenever the popular name will denote the cause of death with sufficient precision.

From a leading article (*p.* 349).

. . . The advice here given, is, in our opinion, calculated to detract, very extensively, from the value of the remarks by which it is preceded . . . if medical practitioners fall into the loose habit of recording the *vulgar* names of diseases, to the exclusion of their correct, scientific, appellations, in accordance with nosological nomenclature, we shall only obtain from the Registrars a heap of rubbish which cannot be rendered available for any single useful object. Besides, it should be borne in mind that the vulgar name of a disease which is of frequent occurrence in one county, is unknown to the inhabitants of an adjoining county, and terms which are perfectly well understood by inhabitants of the north of England, are unknown to the population of the south and the west. Again, in the same county, when the body wastes or decays under the operation of some internal chronic malady, whether it be of the heart, the lungs, the stomach, the liver, or the mesenteric glands, the disease, when mentioned, is generally included under the single designation of "consumption" or "decline." What, therefore, we would earnestly recommend, is this—that the scientific name should *never* be omitted, when the nature of the disease is actually ascertained, and that, in addition, in all cases, when the complaint is known by an unlearned appellation, the vulgar name should be added to the scientific term. Unless the Presidents of the Colleges issue a further notice on this subject, containing an additional recommendation, of the tendency which we have here intimated, we anticipate that the paper which they have put forth will be productive of very serious and almost irremediable disadvantages.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

BY A MEDICAL ECONOMIST

IV

MOST of us have heard economics described as "the dismal science." This is certainly a mistake. Economics, to-day, is the most exciting science in the world.

Excitement and science, one has been warned often enough, make bad bedfellows. I do not believe it. The gentleman who sprang out of his bath shouting that he had "found it" was certainly excited and so was Pasteur when he hugged the porter in the university quadrangle and imparted to that astonished man the news that he knew at last why tartaric acid crystals might be either dextro- or lævo-rotatory. Ronald Ross, again, was so excited when he found the malarial parasite in the body of a female anopheline mosquito that he sat down and wrote a poem in celebration of the event, and the late James Mackenzie assured me that he experienced a similar feeling when he obtained his first tracings of the auricular wave in the jugular pulse.

These men were excited because, in Mackenzie's phrase, they "knew that they were getting at the truth." Truth must be exciting since, in immemorial promise, "the truth shall make you free." Did not Bunyan's pilgrim shout and dance when the burden rolled from his back? As G. K. Chesterton said on one occasion, England used to be full of the songs and shoutings of happy folk who could not work without rejoicing nor meet one another without making a feast of it. Shouting and singing are heard no longer in English workshops.

Excitement remains, though, in the laboratories where work that is really considerable is being done. And excitement would be spreading from the laboratories to the workshops and factories and the homes of the people if only we knew how to make use of all the good things which science has bestowed, without at the same time snatching work, and the livelihood which depends upon work, from men and women. "Science," laments the good fellow in the street, "has failed. Science can give us only unemployment or poison gas."

It is a monstrous libel; but who shall blame the good fellow? If you invent a method of doing something which can be used by one man instead of by the twenty men now employed on the job, you are taking the bread, surely, out of the mouths of nineteen families? That stands to reason and arithmetic. Again if you go on doing that sort of thing often enough there will be trouble, national and international. Poison gas is likely to be wanted.

In other words science is a curse—the greatest man has ever known. Back to the plough, the spade, the bare hands of naked savages grubbing for roots in virgin forests. Away with steam, petrol, electricity, antisepsis, vaccination, inoculation, antitoxins—all the apparatus of modern civilisation and modern medicine. What? Would you preserve life in order that the ranks of the desperate may be swelled? Every child is potential cannon fodder, industrial or military. A baby lost is a living saved.

What balderdash it all is—and what blasphemy into the bargain. Can any science which is probing this mystery—or rather this black magic—be called dismal while a chance remains that the truth may be found? "The truth shall make you free."

It is all a question of money and not one man in a thousand knows anything about money. Indeed for every person who thinks that money is important in this respect there are ten thousand who think that the real enemy is land or "capital." Land can be seen and capital can be counted. "Would you dispossess the landlords or take my money away from me? Bolshevist!"

* * *

The point about land, of course, is that it can be turned into a monopoly. They grasped this fact clearly and steadily in the Middle Ages and invented a system whereby nobody could acquire an absolute title to land. Kings, not Bolshevists, instituted this system. It was called the feudal system. From the beginning, noblemen detested it and fought against it, so that they might acquire their land in full possession and thus become monopolists not only of broad acres but also of the folk living upon them. The noblemen of England scored their first great victory over the kings at Runnymede and we therefore celebrate Magna Charta as the foundation-stone of our liberty. A second and greater victory was secured when the head of Charles Stuart fell in Whitehall and perpetual alliance of landowner and money-lender was sworn over the dismembered body. Charles had refused to borrow from the City of London; he had dared to try to obtain money from the landowners and thus had challenged their absolute titles. It was the feudal system which he had been trying to re-introduce; thank God he did not succeed, for otherwise Englishmen would have not have enjoyed the loss of their common lands nor those great measures of liberation which snatched their acres from the small farmers and transmuted the whole of the yeomen of this land into hired labourers condemned, in the hungry forties, to eat black bread and die of vitamin-D starvation.

The destruction of the feudal system was the essential prerequisite of the introduction of the monetary system which is called to-day "the credit system." It will surprise many people to learn how this system was discovered.

* * *

There was a man who, long ago, kept a strong-room where, for a small fee, you might deposit your gold and silver. He gave you a receipt for the money you entrusted to him. And you, being a child of Adam and lazy, never went back for your gold or silver. These paper receipts, these IOU's, were so much more convenient.

The man who kept the strong-room duly noted this fact. Legend says that he was married and that his wife had a quick wit. At any rate, she is reputed to have called her husband's attention to the fact that his receipts were circulating in the town just as if they had been minted coin. The lady drew the correct inferences and gave ear to the serpent. She is reputed thus to have addressed her lord: "They are using your receipts instead of money. They come here for real money only when they are going

on journeys out of the town because, in other towns, your name is not known. Do you realise that if a man has deposited £100 here he will draw out only about £10 in any year?" The lady's husband had realised that quite well. He had observed that about 90 per cent. of his stock of gold and silver remained, year after year, idle upon his shelves. The lady continued: "You can therefore issue and lend receipts for ten times the quantity of gold and silver in your keeping without danger of being found out." And it was so. But note that, from now onwards, the keeper of the strong-room was never solvent. Nine-tenths of his receipts, in fact, were receipts for nothing. Day and night the dread lay upon him that all his customers might appear in a body at the same moment to demand their real money. It follows that he did not dare to go into the market himself and buy anything with his receipts. Suppose he had bought a house for £1000. One thousand pounds worth of receipts would now have been in the hands of the buyer, who might conceivably present them and ask for his money. Suppose, further, that, on that evil day, the value of the house had fallen to £500. It would not be possible, in such an emergency, to sell the house and so recover from the open market enough minted coin to satisfy the demand.

No, there must be no buying, only lending. Then, when the borrower brought his house as security for the loan (of receipts for nothing) one could say: "This house is worth £1000; I will lend you £500 so that, if prices should fall, I shall still be amply covered." But one thing the keeper of the strong-room might safely buy outright since its price was fixed and could not change—namely, gold. He proceeded to do so; and soon he and his friends had bought all the gold in the world with nothing more substantial than their signatures upon receipts for nothing. Gold was money—the only money. They had made a corner in gold. They had secured a monopoly of money. Nothing has ever been bought so cheaply since the world began.

Now the whole world must come and borrow from them seeing that there was no other source of money. The world would be told that security must be given against every loan. Land, in absolute title, is the best security. The keeper of the strong-room and his friends acquired most of the land—also for nothing. The monopoly of money had bestowed monopoly of land and so of all that grows upon or is dug out of the land and of all that is builded upon it. Reason staggers in the face of this terrific fact—for fact it is.

The immense benefits accruing to all of us through the destruction of the feudal system and the ruin of the kings, who were its guarantors, can now be understood. Had the feudal system continued land could not have been pledged as security for debt and consequently the monopoly of money must have remained more or less insecure, owing to the strength which the feudal system gave to kings and peoples. (There, incidentally, is the explanation of the fact that the Middle Ages left no debt but many beautiful buildings, including the guildhalls and cathedrals, whereas our age is likely to leave £8,000,000,000 of debt and much fewer beautiful buildings.) The money-lenders had helped the noblemen to destroy the kings so that the noblemen might be free to pledge their land to the money-lenders.

When the nineteenth century began all money was a debt to the keepers of the strong-rooms, who preferred now to be known as bankers. In other words all money consisted of their receipts. You could cash any given receipt for minted gold, but had you tried to cash all the receipts on the same day——the thing happened on several occasions. The government always came to the rescue with a moratorium.

Now it is obvious that if all money is debt, repayment of all debt would be equivalent to the disappearance of all money. Debt is constantly being repaid to the lenders; it is necessary therefore to secure a constant stream of fresh borrowers—if the truth is not to be made manifest. Men borrow when prices are rising and they hope to make a profit; they borrow also when prices have fallen and they have made a loss. Consequently the system requires an unending succession of booms and slumps. It requires, further, a solid mass of poverty, seeing that people who are well off do not make use of the instalment system and other forms of borrowing. It is the booms and slumps which sterilise all the efforts of science to produce a better world. With a slump in sight the manufacturer will avail himself of every kind of labour-saving device—in order to "save" labour.

But the system has its Achilles heel. If prices, or rather the level or average of prices, could be held stable borrowing would necessarily cease and the system would come to an end. Thanks to the study of economics undertaken by the President of the United States that is exactly what is now happening. The American level of prices and, with it, all the other price levels of the world, is in process of being stabilised. What is going to happen? Will there ever be another slump?

At least we can say, with full assurance, that the dismal science is, at this moment, by far the most exciting science in the world.

PANEL AND CONTRACT PRACTICE

Prescribing for Hospital Patients

THE Somerset insurance committee have been exercised at having to surcharge two insurance practitioners in respect of surgical appliances supplied to patients before leaving hospital. A medical member, protesting against the surcharges, said that in one case a patient suffering from a disease of the spine underwent an operation in hospital, and when treatment there was finished the patient could not be moved without a proper spinal support, which was supplied on the instructions of her insurance practitioner. In the second case it was thought that a man's back was broken, and the surgeon said that he must have a support before being moved out of the hospital.

At first sight it would appear to be illogical that a patient who can manage to get home can be supplied with a spinal jacket on the order of his insurance practitioner provided it is required for treatment of a fracture, dislocation, or disease of the spine; while a fellow sufferer who cannot be removed from hospital without the appliance may not be so supplied. But it must be remembered that insurance practitioners are not responsible for the treatment of insured persons in hospitals or similar institutions which are not open to medical practitioners generally for the treatment of their patients, and in fact they exercise no control over the treatment of their patients in hospital. This applies especially in surgical cases whose treatment hardly falls within the definition of services other than those involving the application of special

skill and experience of a degree or kind which general practitioners as a class cannot reasonably be expected to possess. The principle affecting these spinal jackets is surely the same as that applying to drugs; it would not be seriously contended that an insurance practitioner should prescribe drugs for his insured patients in hospital.

In 1931 the I.A.C. issued a statement as an interpretation of the position of hospitals in the matter of treatment of insured persons, with particular reference to the supply of drugs and appliances to such persons. The following extract puts the position succinctly:—

> If a hospital has a restricted medical staff no insured person is entitled to any treatment at the hospital *qua* insured person, nor is any member of such staff, who is also an insurance practitioner, entitled to treat at the hospital any patient *qua* insured person. It follows, therefore, that the occasion never arises when such a hospital is called upon to dispense, nor any insurance practitioner upon the staff entitled to prescribe *qua* member of the staff of the hospital, medicines or appliances at the cost of the national health insurance funds.

The insurance committee decided to refer the matter to the National Association of Insurance Committees.

Cremation Certificates

An insurance practitioner issued an ordinary death certificate without charge and was then asked for the special certificate required before cremation could take place, for which he rendered an account for a guinea. The relatives raised the question of payment with the local insurance committee, and an inquiry was addressed by them to the Ministry of Health as to whether it was open to the practitioner to submit an account for a certificate required purely in connexion with the cremation. Rule I of the medical certification rules is quite explicit; certificates are required to be given only if they are necessary for the purposes of national health insurance, and the department gave the obvious answer that there is nothing in the rules to preclude a practitioner from claiming a fee for giving a medical certificate in the circumstances indicated.

PARLIAMENTARY INTELLIGENCE

THE FACTORIES BILL IN COMMITTEE

THE Factories Bill was further considered by a Standing Committee of the House of Commons on May 5th.

Examining Surgeons

On Clause 119 (Appointment and duties of examining surgeons),

Major NEVEN-SPENCE moved to leave out the proviso that the Secretary of State might authorise a medical practitioner who was employed by the occupier of the factory in connexion with the medical supervision of persons employed in the factory, but was not otherwise interested in the factory, to act as examining surgeon for that factory for such purposes as the Secretary of State might direct. He said the more he looked at that provision the less he liked it. Factory examining surgeons were specialists in regard to knowledge, experience, and qualifications and were, or ought to be, whole-time men at the job. A medical practitioner in charge of welfare work in a factory had not necessarily any of the qualifications which he should have as an examining surgeon. If under Clause 67 (which deals with the duty of an examining surgeon to investigate and report in certain cases) the Home Secretary required an investigation and report in the case of death or injury due to exposure to fumes, or in the case of any disease, that duty should not be carried out by someone who was a paid employee of the occupier of the factory.

Mr. WHITE said he hoped the Under-Secretary would give favourable consideration to this amendment. A great deal of anxiety had been felt in some quarters because it seemed to introduce an undesirable principle in doing something which might tend to put the medical practitioner employed in a factory in an undesirable position. Nobody held the medical profession in higher esteem than he (Mr. White) did, but people should not be placed in a statutory position where their public duty might conflict with their private interests. Under this clause they might have the position where a man in receipt of a salary of £1000 a year from the occupier of a factory could be appointed, but another who held five shares at a shilling each in that factory would be disqualified from serving. If the Under-Secretary was unable to accept this amendment perhaps he would give special permission for the surgeon employed by the factory to report for certain extra duties.

EMPLOYMENT IN TWO CAPACITIES

Sir J. HASLAM said he hoped that the amendment would not be accepted. He had had experience of factories in which a very high standard had been developed in regard to the after-care of young people who worked in mills where there was a complete system of medical inspection, nurses, and rest-rooms. In their discretion the owners asked the certifying surgeon to act as their medical adviser in this matter, and who could do it better? The ordinary family doctor had to know something about everything, but the factory inspector became a specialist in his own business in knowing the law, understanding adolescence, and so on. It was a very wise move indeed for those progressive firms who had rationalised their business and set an example to the whole of the country in looking after the health and welfare of their workers, to call in the factory surgeon as their medical adviser not only in regard to certifying but in every other respect of their line. It was a slur on these medical men that they should be excluded by statute from occupying this position and the Home Office would be ill-advised to exclude them from carrying on welfare work in the factories in addition to their ordinary certifying business.

Mr. RHYS DAVIES said that he had come in close contact with this problem, because the factory surgeons had come to see him personally, so that he had heard the case put both ways. He had decided definitely in favour of the deletion of this proviso. Take the case of a young man direct from a university, having passed his examinations as a doctor, who was now employed full time by an industrial firm, and after a year or so applied to become an examining surgeon under the Home Office. In his (Mr. Davies's) view it was against public policy, and certainly incongruous, that such a medical gentleman, employed full time and receiving a salary from his employer, should be asked to do a public duty in respect of his own employment. Municipal authorities had decided that once a man was appointed as a full-time medical officer he should not do private medical practitioner's work. He did not wish to say anything in criticism of the doctors, who were doing a very noble service, but it was contrary to human nature to expect them to do a public service on the one hand and to do their job for their employers at the same time.

Mr. LLOYD, Under-Secretary, Home Office, said it was not easy to make up one's mind on this point. When he first saw this proviso his attitude was that of Mr. Rhys Davies, and he was inclined to take the view that it was not right to put any man in a position in which there might be a conflict of duties or interests. Since then, however, he had heard the other side of the question and he was bound to say that it had impressed him. He would remind the Committee that this was only an authorisation to enable the Home Secretary to allow this procedure in certain

cases, and for certain purposes, and therefore it could be closely controlled by the Home Office. Most of these factory doctors were very keen on their job. It was in relatively progressive industries that the employers had been sufficiently public spirited to go to the trouble and expense of having a special doctor for this purpose. That was a development which the Home Office would like to encourage. It would seem that it was not necessarily right always to forbid definitely a works doctor, who knew so much about the conditions in the factory, from performing some of this work under the Factories Bill, such as, for instance, the certification of the fitness of young persons. Other people might take a different view, but he thought that under the safeguards provided in the Bill the Home Secretary might have power to authorise this. He agreed that if it were authorised improperly it might be liable to abuse, but on balance he thought it was wise to retain this proviso in the Bill.

Mr. RHYS DAVIES asked what was the process whereby an examining surgeon might be removed from the list if it was found that in the public interest he should not continue with his work.—Mr. LLOYD: I am taking a little advice on that matter.

POSSIBLE CONFLICT OF INTERESTS

Mr. SILVERMAN said an examining surgeon was called upon to act in a quasi-judicial capacity and to do things in which there might be a conflict of interests, not between the doctor and the public but between the employer and the employee. Under Subsection (4) of the clause under discussion it was provided that the examining surgeon of any factory should have power at all reasonable times to inspect the general register of the factory. In Subsection (6) of the clause it was provided that an examining surgeon should, if so directed by the Secretary of State, make special inquiry and examination of employed persons as might be directed. Frequently a special inquiry would be required where there was a suggestion that something improper had occurred, or where there had been a breach of the regulations. In such a case a doctor who was an employee of the factory would take part in something of the nature of a judicial inquiry. Subsection (9) of the clause stated:—

> "References in the Workmen's Compensation Act, 1925, to a certifying surgeon shall be construed as references to an examining surgeon appointed under this section, and references to the certifying surgeon for the district in which the workman is employed shall, in a case where a workman is employed in a district for which no examining surgeon is appointed, be construed as references to the medical practitioner (if any) appointed by the Secretary of State to have the powers and duties of a certifying surgeon under Part II of the Workmen's Compensation Act, 1925."

There the duties were almost absolutely judicial. There were many cases of industrial disease where it was the business of the certifying surgeon to certify what disease had been contracted and whether it had arisen out of the employment. In many cases the certifying surgeon's certificate was conclusive, or almost conclusive, as to the right to workmen's compensation. If a certifying surgeon was given powers to decide people's rights as between employer and employee it was not proper that he should be a person employed by the employer against whom the rights were being determined. He was not suggesting that doctors in that position would act improperly, but the policy of the law had always been not to place in positions of judicial office, or quasi-judicial office, persons who were in any way bound to either side in the matter which was being litigated. He did not say that the Secretary of State would often appoint persons where Subsection (9) would have to be operated, but surely it was much safer on the whole not to have this proviso in the Bill at all.

Mr. SHORT said that he found, as many members of the Committee did, some difficulty in reconciling this proviso with the provisions of Clause 67 of the Bill. He suggested that the Home Secretary might insert some words by which, while it would be possible for a paid medical officer of a particular factory to be an examining surgeon, he would not be permitted to investigate the cause of death or of some disease reported by the inspector which occurred in his own factory, but some other examining surgeon would be called in to do that class of work.

A HOME OFFICE AMENDMENT

Sir JOHN SIMON, Home Secretary, said he rather liked that suggestion. There were undoubtedly cases in which according to general notions of what was fair and right it would not be proper for the medical officer of a factory to act as between possibly contesting parties. On the other hand, as a matter of common-sense and progressive administration it would be a pity if a factory medical officer, appointed by a progressive factory owner to look after his work-people's health, were debarred from certifying who was fit and who was not fit, because that work depended on a man's knowledge of the people and their work. He (Sir J. Simon) would be prepared to amend the proviso so that it would run something like this: "Provided the Secretary of State may authorise a medical practitioner . . . to act as examining surgeon for that factory," and instead of saying: "for such purposes as the Secretary of State may direct," it might be sufficient to say: "for the purpose of examining and certifying the fitness of young persons."

Mr. WHITE: There is also the matter of certificates of employment.—Sir J. SIMON: Yes; it arises under Clause 92. Continuing, the right hon. gentleman said that if he might put the words he had suggested into the Bill provisionally he was willing to do so.

Major Neven-Spence withdrew his amendment and moved an amendment in the form suggested by Sir J. Simon, which was agreed to.

Mr. RHYS DAVIES moved an amendment providing that subject to the consent of the employed person concerned the examining surgeon should have the right to inspect the medical records of the medical practitioner employed by the occupier of the factory.—Mr. LLOYD said the Home Office would like to go into this matter further and see whether the proposed amendment was desirable.

The amendment was withdrawn.

THE QUESTION OF SCHOOL MEDICAL DOSSIERS

Mr. ELLIS SMITH said that there had been gradually growing up an ideal system of medical supervision of school-children up to 15 and 16 years of age. The medical men and women who were administering the Education Acts had scientific knowledge of the development of the children, kept records of their health and capabilities in the classes, and were in constant touch with the children themselves. Up to the age of 18 the future of young people was very uncertain. In these times of repetition work in large factories it was common for young people to be discharged at 16, 17, or 18 years of age, and the progressive education authorities were of the opinion that the medical officers who administered the Education Acts ought to have jurisdiction also over the children until they reached the age of 18. He understood that the medical officers were already responsible for children up to 16 so far as the elementary schools were concerned, and in the case of the secondary schools they were responsible for them until the age of 18. He asked the Home Secretary before the Report stage of this Bill to reconsider the whole of this clause in order that this gradually developing scientific method of handling children up to the age of 16 might be continued until they were 18.

Mr. LLOYD said of course the views of educationists on a matter of this kind, which was not directly within their purview, were not the final word; there was another side. There were also the points of view of the industrialists and the doctors to be taken into account, and they were not quite the same thing.

Everyone knew that doctors attached great importance to a proper medical history of a case, and they were really at a loss if they had not got it. If it were necessary to change the provisions of the Bill in order to make sure that these medical histories would be available, and if they could not be made available in any other way, the case would be very strong, but even then there would be considerable objections. He believed that quite a large number of school-children—many more than one was inclined to think at first sight; indeed he had heard it estimated at 50 per cent., though that could not be true in all cases—went to work in areas different from those in which they had grown up as school-children and that would make the working of this scheme, if it was still to be based on the educational medical system, rather difficult. In any case, however, he thought they must realise that these medical histories could be made available. There were elaborate provisions in Subsection (9) of Clause 92 for making available those medical histories which were really important. Therefore he did not think that the case was so strong as was suggested, and he did not think that they ought to take the view that the doctors under the education system were more likely to do the work better than the examining surgeons were doing it to-day. They were practical doctors who had had considerable experience of industry, and he thought that the Committee would be ill-advised to make such a change as had been suggested.

The clause was ordered to stand part of the Bill.

FEES OF EXAMINING SURGEONS

On Clause 120, Mr. VIANT moved to provide that the Home Office should be charged with the expenditure in connexion with this part of the Act.—Mr. LLOYD said he thought it was a reasonable view to take that these medical examinations were on a similar basis to the other precautionary measures which occupiers were required to take, and of which they had to bear the expense, and he saw no reason why they should be relieved of this particular expense. The amendment was withdrawn and the clause was ordered to stand part of the Bill.

The Committee adjourned until May 25th.

CORRESPONDENCE

OBSTETRICS IN GENERAL PRACTICE

To the Editor of THE LANCET

SIR,—I am in agreement with your leading article of May 8th that the proposals contained in the recent report by the Ministry of Health on maternal mortality and morbidity are revolutionary. You leave one doubting, however, whether you approve or disapprove of the revolution. On balance, I conclude that you approve, as I do. For many years I have advocated the recommendations contained in the report. To put it very simply, operative obstetrics should be placed on a plane with surgery and the surgical specialties—only experts should deal with it. By experts I include not only pure obstetric specialists but those general practitioners who, by post-graduate training and the interest they take in obstetrics, have qualified to practise this special branch of medicine and surgery.

My criticism of the report is that it does not define and detail how the obstetric service is to be organised. I did so in 1931 and included my scheme in "Maternal Mortality and Morbidity: a Study of their Problems" published by E. and S. Livingstone in 1933.

We are now going to have expert municipal midwives. Their work should be directly associated with the antenatal clinics of local authorities; this would give those centres very definite supervision of their work and lessen the number of "inspectors," or "supervisors" as the Minister of Health prefers to designate them, necessary for the service.

The medical staff of the antenatal clinics should be well-trained and experienced obstetricians and they should act as consultants to the municipal midwives when they require advice or assistance. Further, the obstetricians of the antenatal clinics should be on the staff of the local maternity hospitals and act as assistants to the medical director or directors of the hospitals. At present in many antenatal clinics of local authorities the medical staffing is unsatisfactory, because the individuals doing the work are engaged only in the antenatal care of pregnant women—they have nothing to do with the supervision of women in parturition or during the puerperium.

In many large cities, and certainly in all in which there is a teaching school, pure obstetric specialists are to hand. In some these would have to be introduced, as has been done in a few instances. In small cities and towns specially well-trained family practitioners should be enlisted into the service. It is unfortunate in some respects that obstetrics in common with so many other departments of medicine has to be removed from the province of the family practitioner. But as you point out "occasional obstetrics is even more dangerous than occasional motoring"; possibly "may be" should be substituted for "is."

One word more. I think it would be preferable if in the further developments of the service construction were made from the centre or the institution rather than the periphery. It is impossible to predict to what extent institutional treatment may extend. As a simple example—a number of us think that all primigravidæ should receive institutional treatment in their first confinement.

I am, Sir, yours faithfully,

Canterbury, May 13th. J. M. MUNRO KERR.

MEDICAL PEACE CAMPAIGN

To the Editor of THE LANCET

SIR,—The death early in April of Dr. Cecile Booysen, the secretary of the Medical Peace Campaign, has been a great loss to her colleagues. It was chiefly through her inspiration and energy that the work of such a campaign was conceived and initiated. As we, who were closely associated with her, interpret her thought, it was that our profession has a duty to strive for the prevention of all human suffering and pain by penetrating to their causes and removing them. If war came to be outside the medical purview, one of the main sources of such suffering would be eliminated. A calm, scientific approach is needed and the profession as a whole should be urged constantly to debate the problems associated with war and its causation much as it debates the ætiology and prevention of disease.

It is in this spirit that her work will be carried forward. We do not anticipate spectacular results, for the point of view will require discussion among our colleagues before it is likely to receive full acceptance. But primarily it is this discussion that we wish to initiate and foster.

An account of the activities of the Campaign up to date will be found in the three bulletins that have so far been issued; but we feel that our activities

are only beginning. We hope soon to issue a short book on the causes and characteristics of war as considered from a strictly medical point of view. Suggestions on possible research will be welcome, as will any other proposals for furthering the objects of the Campaign.

Finally we express our hope that all members of our profession, who are convinced of the urgency of action, will place themselves in some relation with the existing Peace organisations, such as the Peace Councils and the branches of the League of Nations Union.

On behalf of the Committee of the Medical Peace Campaign, I am, Sir, yours faithfully,

May 15th. JOHN A. RYLE.

THE METHYLATED SPIRITS (SCOTLAND) BILL

To the Editor of THE LANCET

SIR,—It must be assumed that the taste for that noisome fluid methylated spirit is sufficiently prevalent north of the Tweed to require an Act of Parliament to check its indulgence; otherwise it is inconceivable that the Methylated Spirits (Scotland) Bill, which is down for second reading in the House of Lords on June 1st, should have passed through all its stages in the Commons. Is this crank legislation or is it not? The Bill as introduced into the House of Commons sought to control the sale in Scotland of methylated spirits by requiring that all purchasers of it should sign an entry in a book kept by the vendor for the special purpose of tracing the buyer who purchases the spirit in quantities less than four gallons. In other words a Scotsman might still buy 32 pints without disclosing his identity but if his requirements were for the modest quantity of say half a pint, whether to take the spots off his Sunday clothes or to boil water to add to a piece of lemon and something really worth while, he would, unless he signed the book, make the man who sold him the spirit "guilty of an offence and liable on summary conviction to a fine not exceeding ten pounds or to imprisonment for a period not exceeding sixty days." For some reason or other surgical spirit was co-partnered with the other evil spirit in the course of the passage of the Bill through the Commons. Should this measure eventually receive the King's sanction all persons in Scotland who are ordered by their medical advisers to procure a supply of surgical spirit so that the patient in the house may be treated for bed-sores will have to go about the purchase of it in much the same way as they have to follow if they wish to purchase a deadly poison. This is not a Bill which should be hurried through Parliament. Its motive is good but the aim should be to stop the four gallon "beano," to introduce a very vulgar word, rather than to place the slightest hindrance in the way of invalids suffering from bed-sores.

I am, Sir, yours faithfully,

London, May 15th. F. C. GOODALL.

PRURITUS ANI

To the Editor of THE LANCET

SIR,—In your issue of May 8th Dr. J. T. Ingram attacks my views on pruritus ani in no uncertain manner, and I will concede at once that I would have been wiser to leave out the word "destructive" in mentioning the possible effect of X rays on the vessels. His other thrusts are more easily parried.

He denies that itching is more apt to occur at body orifices than elsewhere, but in any public gathering it is commoner to see people scratching or rubbing the eyes, nares, corners of the mouth, and ears than other parts, not excepting the healthy scalp. In children in whom social inhibitions are not yet developed the same applies to the vulva and anus; and the first symptom of acute urethritis is frequently irritation at the meatus. This matter, however, was merely referred to in an introductory manner. I do not think the term "prepruritic stage" merits his sarcasm, as it is merely another way of saying that the threshold to irritation is lowered, and the variability of thresholds is an accepted physiological fact. I am well aware, as I indicated in my article, that the œdema is generally regarded as due to scratching and rubbing; but it does not follow that this view is correct. In fact I think it has been the greatest stumbling-block to a proper conception of the disease. Dr. Ingram states that œdema of the skin is readily provoked in the skin of the genitalia, but in many cases of severe scabies in soldiers, involving the scrotum and penis and exhibiting numerous scratch marks in that area, I never saw any lesion even remotely resembling that of pruritus ani.

The constructive part of his letter is not quite clear to me, but I may be allowed to refer to it. He says the indulgence in the pleasure of anal itching often creates the habit which is so difficult to break. Does he mean that the patient creates itching by auto-suggestion and that the sensation arises in the sensorium? As scratching is used to relieve itching why does the patient scratch to get rid of a sensation which he likes? Why is pruritus ani a disease of middle age, though habits are most easily acquired in childhood and youth? Dr. Ingram complains that I dismiss the psychological side of the problem; but psychology, though a good servant, is a bad master.

Major Porter in your last issue is, I think, unwise in the generalisation that pruritus ani is due to abnormal anal papillæ. Papillæ which are enlarged, inflamed, or partially detached are often seen in the absence of pruritus, but they overlie veins passing down to the external hæmorrhoidal area, and these veins can hardly fail to be damaged when the papillæ are cauterised. I am, Sir, yours faithfully,

J. W. RIDDOCH.

Edgbaston, Birmingham, May 17th.

INSULIN SHOCK TREATMENT OF SCHIZOPHRENIA

To the Editor of THE LANCET

SIR,—Before subjecting patients suffering from schizophrenia to the train of events incidental to the depletion of glucose from the body fluids and tissues (referred to as "hypoglycæmic shock"), it is to be presumed that consideration will be given to the possibility that such a train of events may be due to colloidal precipitation. Having in view the cellular pathology of true schizophrenia the adoption of such a procedure would appear to entail especially serious risks. I am, Sir, yours faithfully,

Stafford, May 15th. B. H. SHAW.

To the Editor of THE LANCET

SIR,—I read Dr. Russell's letter in your last issue, and having recently had the advantage of studying the latest modification of this treatment at Vienna and Münsingen I think it may serve a useful purpose to record the methods now adopted by these experienced workers in assessing the various depths of coma which we follow in our treatment at this hospital. In Vienna and Münsingen the degrees of unconsciousness during hypoglycæmia are expressed as

light coma, deep coma, and very deep coma. The onset of "light coma" is noted as soon as the patient is unable to respond to external stimuli, such as calling his name or touching his body. He may be quiet or restless. His reflexes are present. The onset of "deep coma" is carefully noted and is characterised by loss of the corneal reflex. A sign I have seen frequently used is gentle blowing on the eyelids; in "deep coma" there is no flinching. "Deep coma" is considered essential in treating excited and paranoid schizophrenics. It is never allowed to exceed one to one and a half hours. The patient is in a "very deep coma" when the pupils do not react to light. As long as the pulse and respirations are satisfactory this condition may be allowed to last for a short time, but the doctor keeps close to the patient and ready to interrupt the hypoglycæmia.

From personal experience in this hospital I find that frequent examinations of the conjunctival reflex delay the onset of deep coma and therefore I consider the absence of response to gentle blowing on the eyelids as a useful guide. When deep coma has lasted for several minutes a more thorough examination can be made with less likelihood of the patient returning into light coma (release of adrenaline).

I am, Sir, yours faithfully,

L. A. FINIEFS.

Three Counties Hospital, Arlesey, Beds, May 18th.

A DISPUTED WILL

To the Editor of THE LANCET

SIR,—In THE LANCET of July 2nd, 1904, you were kind enough to publish an address I had recently delivered before the Hunterian Society on the subject of perforating typhoid ulcer. In it I drew attention to the fact that between the first symptoms of perforation and those indicative of the consequent fatal peritonitis, a remission of symptoms may occur to such an extent that the diagnosis of perforation may be abandoned, and I illustrated my remarks with details of cases. One of these is very pertinent to the case referred to in your last issue, for the patient, a man of 56, actually within a few hours of his death gave certain directions as to the disposition of his property. He was quite *compos mentis*, and I should have been prepared to testify that he had been so in any court of law had it been necessary, as I was present at the time.

I am, Sir, yours faithfully,

E. W. GOODALL.

Hemingford Abbots, Hunts, May 16th.

SPAIN OR INDIA ?

To the Editor of THE LANCET

SIR,—A letter in your issue of March 13th, under the heading A Spanish Ambulance, reminds one again of that peculiar characteristic of the British people which impels them to lavish their time, energy, money, and even their life-blood for the relief of the foreigner in distress, whilst they will turn a completely blind eye on the needs of their fellow-countrymen. Let a war break out, or some major national disaster occur in Spain or Abyssinia, or indeed in any country other than one belonging to the British Commonwealth, and at once appeals appear over distinguished names calling for money, doctors, nurses, and all the paraphernalia for equipping and dispatching medical units to the distressed area, and such appeals, apparently, meet a ready response.

Does it ever occur, I wonder, to those who promote and respond so generously to these appeals that there is surely room for their philanthropic efforts in our vast Empire, and indeed even in our own small island? Do they realise, for example, that here, in India, there are vast areas where sickness, disease, and starvation are rife and where perhaps the only person to whom the people can look for the relief of their distress—if indeed there is anyone at all—is one underpaid and overworked missionary doctor?

I am not a missionary doctor; I hold no particular brief for missions, nor is this letter an appeal in aid of the medical missions; it is merely intended to indicate one channel into which I consider the charity of my fellow-countrymen might more profitably be directed. However much one may feel for the unfortunate victims of the Spanish civil war, I think we should remember where charity ought to begin, and I personally would not give one farthing to aid a distressed Spaniard or Abyssinian so long as one fellow-member of our Empire is in need of assistance and it is within my power to help him.

I am, Sir, yours faithfully,

Assam, India, April 20th. CIVANEC.

EXPLANATION AND APOLOGY

To the Editor of THE LANCET

SIR,—In the booklet recently issued by our firm in connexion with a block of flats in Dolphin-square the name of Mr. Hope Carlton, F.R.C.S., was mentioned as being a doctor in residence there and available in emergency. We regret to say that Mr. Hope Carlton's name was inserted in this booklet without any authority from him, without his authority being sought, and without his knowledge, and we desire to express to him our sincere apology for the unauthorised use of his name and any inconvenience that he may have been caused thereby. Mr. Hope Carlton is not practising at or from Dolphin-square, which is his private residence, but he is continuing to carry on his practice as a consulting surgeon as before.

We are, Sir, yours faithfully,

RICHARD COSTAIN LTD.

Dolphin-square, Grosvenor-road, S.W., May 11th.

THE FRUITS OF IDLENESS

To the Editor of THE LANCET

SIR,—Last week your Scottish correspondent again mentioned plans to shorten the students' summer vacation. Far be it from me to interfere with the traditional sport of overburdening the curriculum; nevertheless I venture to hand on the opinion of a group of young London consultants whom I lately heard discussing medical education. The question arose why the new Scottish graduate is a better doctor than his English contemporary. The answer was that his long summer holiday, his life in lodgings, and his habit of frequenting places of public refreshment bring the Scottish student into closer touch with real human beings and so promote an earlier maturity of judgment. The holiday also prevents staleness in teacher and taught.

Of course the argument breaks down at the source if the Scottish University authorities do not agree that their graduates are superior.

I am, Sir, yours faithfully,

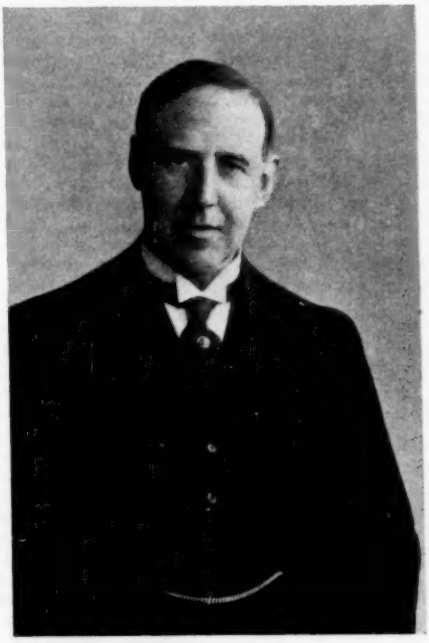
Sussex, May 18th. VULPIS.

MEDICAL PRAYER UNION.—On May 26th, at 8 A.M., in the refectory of University College, Gower-street, London, W.C., this society is holding its annual missionary breakfast. The speaker will be Dr. Clement Chesterman. Those who wish to attend should notify Dr. Tom Jays, Livingstone College, Leyton, E.10.

OBITUARY

S. A. KINNIER WILSON, M.D., D.Sc. Edin., F.R.C.P. Lond.

THE death of Dr. S. A. Kinnier Wilson removes from neurological medicine a great figure, who gained early in life an international renown which was well deserved. If his name carried even greater weight abroad than at home this is not to imply that he lacked honours here but that his command of languages, his power of lucid exposition, and his forceful personality carried his fame to places where the achievements of other British neurologists had not been accorded recognition. Perhaps his repute abroad depended on the fact that neither in thought nor in teaching could he be considered as typical of the British school. Rather he kept up the tradition of the Salpêtrière in the days of Pierre Marie, which had been one of his earliest inspirations; and no doubt he owed much also to Hughlings Jackson, of whom he was an enthusiastic disciple.



DR. KINNIER WILSON

Samuel Alexander was the son of the Rev. James Kinnier Wilson of Co. Monaghan, Ireland. He was born in New Jersey, U.S.A., in 1878 and educated in Edinburgh at George Watson's College and the University, of which he became M.A. in 1897. Bursaries and scholarships fell early to his hand before and after he began to study medicine; he qualified M.B. in 1902 and took his B.Sc. with first-class honours in physiology in 1903 after a period as house physician in the Royal Edinburgh Infirmary. In the same year he became a Carnegie research fellow and went to work in Paris with Pierre Marie. On his return to England in 1904 Kinnier Wilson was made house physician to the National Hospital, Queen-square, and he continued to serve this hospital in various capacities for the rest of his life, becoming in turn resident medical officer, registrar, and pathologist, before his appointment to the honorary staff as assistant physician (1913), physician to out-patients (1921), and physician to in-patients (1925). These were years not only of preparation but of achievement. After taking the M.R.C.P. Lond. in 1907 Wilson produced what was acclaimed as an excellent translation of a French book by Meige and Feindel on tics and their treatment, and in the next year published his first contribution to the study of apraxia. From 1909 to 1911 he held a B.M.A. research scholarship, and in the latter year took his M.D. Edin. with a gold medal. In 1912 he contributed to *Brain* the description, which was to become a classic, of a familial nervous syndrome which has come to be known throughout the world as Wilson's disease. In the same year he was made assistant physician to the Westminster Hospital, becoming dean of the medical school in 1914, when he was elected F.R.C.P. Lond. He resigned from the Westminster in 1919 on his appointment to King's College Hospital as junior neurologist and lecturer in neurology in the medical school; he became neurologist to the hospital in 1927 and senior neurologist in 1928, on the retirement of Dr. W. Aldren Turner.

During the last 20 years the esteem in which Wilson was held for research, clinical acumen, and for written and oral explanations of difficult neurological conceptions grew to such an extent that his leisure hours were few and were still further curtailed when in 1920 he became editor of the newly established *Journal of Neurology and Psychopathology*. Yet it was only within the last few years that he became only an occasional instead of a regular contributor of leading articles on neurological subjects to our columns and relinquished, with evident reluctance, routine reviewing duties.

Though Wilson's name is chiefly connected with certain aspects of disorders of motility and of muscle tone, aphasia and apraxia, narcolepsy and hysteria, which he chose as subjects for monographs or official lectures—e.g., the Croonian lectures of the R.C.P. Lond. in 1925, and the Morison lectures of the R.C.P. Edin. in 1930—we have good reason to know that his interests were as extensive as his knowledge was wide. At short notice he could, and would, supply wise comment, generous appreciation, reasoned criticism in words so nicely chosen that notices from his pen were a delight to read. His spoken words—as president of sections of the Royal Society of Medicine, at the annual meetings of the British Medical Association, at congresses or at public dinners—were no less apt in allusion and stimulating in content. This gift and the fact that he was no less agreeably fluent in German or French brought him more invitations to take a prominent part in professional gatherings than he could possibly accept. He was made an honorary member of the neurological societies of almost every European country and of the American Neurological Association, and his personal contacts with workers in other countries were renewed and extended at his clinics at the National Hospital which were frequented by post-graduates from every land.

His interests in recent years are clearly reflected in a book entitled "Modern Views on Neurology," published in 1928, which is much more than the collection of lectures and essays it looks to be. It starts with five chapters on the epilepsies, followed by one on the narcolepsies in which Wilson examines the analogies between various narcoleptic symptoms with those

usually termed epileptic. An essay on the old (striato-spinal) and the new (cortico-spinal) motor systems forms an excellent introduction to the survey of the disorders of motility and of muscle tone, with special reference to the corpus striatum, which formed the subject of his Croonian lectures, here reprinted. The three final chapters are on pathological laughing and crying, on dysæsthesia and their neural correlates, and on the Argyll Robertson pupil. To all the subjects dealt with in this book and to many others he had made a personal contribution which never remained an isolated observation but was woven with infinite care into the complex pattern of current neurological ideas. It is a matter for deep regret that a man with such a power of clear logical thought on intricate neurological problems should not have been able to finish the text-book of neurology on which he had been engaged for the last decade. The book is nearly complete; over three-quarters of the text is ready. A further eighth has been written, but he wanted to rewrite it, and there remains an eighth which existed only in the form of rough notes. His colleagues and disciples had expected this work to become a standard international text-book as important to modern neurologists as was "Gowers" in the late 'nineties, and it is greatly to be hoped that they will be able to arrange for its completion. Wilson's knowledge of his subject was encyclopædic; he read widely and possessed a remarkable memory in which the enormous clinical material that passed through his hands during his many years as out-patient physician at the National Hospital, and as consultant neurologist to the Metropolitan Asylums Board, and, later, the London County Council was safely stored. He was a splendid teacher, with a flair for the unusual phrase that remains in the memory when most of the rest is forgotten, and a delightful informal talker. His lectures and demonstrations were always crowded because there was always something fresh, if not in the case or the subject at least in the manner of presentation. An assistant medical officer at the Fountain Hospital writes: "Dr. Kinnier Wilson's visits to this hospital for mentally defective children were a stimulus and an inspiration. His avid curiosity and his provocative speculations set us hunting for material between his visits and gave a new impulse to routine physical examinations. If we had some half-formulated theory to put forward he was always eager to discuss it, drawing on his own profound experience to check and encourage our reasoning. He was a teacher in the Hippocratic tradition."

The personal side of "Sam" Wilson is not easy to convey to those who did not know him. Strangers were apt to take for hauteur what was only abstraction. He had no facile social grace, nor could the barrier round him be scaled once and for all. The approach remained difficult for all but a band of close friends who knew that he welcomed their advances even if he was unable to help them to reach and retain intimacy; and the depth of his affection was apparent when his friends were in any trouble. His interests outside his library were golf—as a left-handed player—his garden at Thorpeness, and his family. He married Annie Louisa, daughter of Dr. Alexander Bruce, who survives him with two sons and a daughter.

Dr. Macdonald Critchley writes: "A mere recital of international honours and academic distinctions does not adequately describe the place occupied in British neurology by the late Dr. Kinnier Wilson. Although trained on a firm foundation of physiology, anatomy, and pathology, Wilson was at heart essentially a clinician with a philosophical and reflective outlook. In this respect he was inspired by the friendship and precepts of his revered Hughlings Jackson, with whom as a very young man he became closely acquainted. Besides his outstanding abilities Wilson was gifted with an exceptional memory and a sure command of language. He wrote easily and clearly in a style which was individual. His writings, which covered a large range of neurological subjects, had the uncanny faculty of throwing light from an unusual angle upon the problem concerned. In this way his papers were particularly inspiring, always refreshing, and sometimes provocative. Wilson's approach to a problem invariably went beyond a simple recording of observed data—a style of publication which he dubbed as merely 'descriptive'—and he would always inquire in a reflective and thoughtful manner into the modus operandi of clinical phenomena. In this way all his writings were rich in speculative and stimulating matter. The monograph, published while yet a registrar at the National Hospital, which won him international fame was his well-known thesis on 'progressive lenticular degeneration,' a malady which bears his name. This particular work may be regarded as the impetus to the world-wide interest in the normal and morbid physiology of the basal ganglia. Wilson felt that much of the subsequent work went considerably too far into the realms of the imagination, and his Croonian lectures on 'Disorders of Motility' were written as a protest against this striatal jerry-building.

"Wilson will especially be remembered by his pupils as a lecturer. He was probably one of the finest modern medical speakers, eloquent and witty in his choice of language, with a supreme ability for arousing the interest and attention of his listeners, and for stage-managing his material. His clinical demonstrations at the National Hospital were attended by throngs of students from all over the world. His numerous pupils and assistants will be the poorer without his genial and stimulating inspiration. No one was more gifted than he in the ability to illuminate difficult neurological problems and his valuable time was always at the disposal of his juniors. In these days of mediocrity, Wilson stood out as a 'big man'—one who will be remembered for his bonhomie, brilliance, and kindliness of heart. His keen sense of humour—rare in one so witty—will be sadly missed wherever neurologists foregather."

GEORGE EVERARD DODSON, M.R.C.S. Eng., D.T.M. and H.

WE regret to announce the death of Dr. G. E. Dodson from typhus fever on May 9th at Kerman, Iran (Persia), where he had charge of the Church Missionary Society's Hospital. Born in 1872 at Higher Crumpsall, Manchester, he was educated at Giggleswick grammar school and St. Bartholomew's Hospital. He qualified in 1897 and became extern midwifery assistant and assistant in the orthopædic department at Bart.'s, gaining experience which he turned to good use later. After further hospital work at Norwich, Bath, Nottingham, and elsewhere, he was accepted by the Church Missionary Society for service in Persia, and with his wife, Miss E. L. Wells, a trained nurse, he left England in 1904. "During his 34 years of service under the C.M.S.," writes a colleague, "Dr. Dodson did a work for Iran which will never be forgotten. He was a gifted surgeon, and laid the foundation of a social service

and welfare activities—especially at Kerman—which has been of inestimable value. Two outstanding features of his professional practice were his orthopædic work amongst the crippled carpet-weavers, and the skilful obstetrical and gynæcological work which has saved the lives of large numbers of dwarfed cripple-mothers in that industry. No less important were the preventive and welfare services which he instituted, and which led to legislation that has gone far towards revolutionising the conditions of the carpet industry in the cities of Iran. As a missionary he was honoured for his high sense of duty, his lovable personality, and his unsparing self-sacrifice. He died, as he would have wished, among the people whom he had served, and for whom he has given his life."

During the late war Dr. Dodson held a captain's commission in the Royal Army Medical Corps and was surgical specialist at the Colaba War Hospital, Bombay.

PUBLIC HEALTH

The Smoke of Britain

ON the whole the pollution of the atmosphere in this country has been reduced during the last twenty years. This is the conclusion reached in a report by the Department of Scientific and Industrial Research[1] which summarises measurements by 72 municipal and other bodies. Some of the figures show a small increase during the last two years—presumably because of increased industrial activity—but the outstanding feature of the curves is the large decrease in pollution at many places before the industrial depression of 1930–33 started.

The records for London show improvement between 1915 and 1922, but from then until 1936 there was little change in the total solids, an increase in the deposit of sulphates and, if anything, an increase in the deposit of tar. On the other hand, it is considered encouraging that in the winters of 1931–35 central London enjoyed 52 per cent. of the sunshine obtainable at Kew (which naturally shows a small deficiency compared with the remoter countryside) compared with 20 per cent. in 1881–85. In Edinburgh (Princes-street) the pollution is getting rather worse. Glasgow records a steady improvement from 1915 to 1923, but from then onwards there has been little change. At St. Helens the total solids deposited has fallen from 612 tons per square mile in 1917–18 to 447 tons in 1935–36, but the improvement has not been continuous. The total deposit at Wakefield fell from 613 tons per square mile in 1924 to 227 tons in 1935—that is, by almost two-thirds in ten years. Sulphates fell from 136 tons in 1924 to 22 tons in 1930, rising somewhat later to 24 tons in 1935. Tar decreased from 8 tons in 1924 to 6 tons in 1936.

An attempt has been made to trace the trend of affairs for suspended impurities which produce smoke haze as well as matter deposited from the air. In this respect the London stations do not all tell exactly the same story, but there is again a general indication of improvement. In four out of five of the observing stations, however, the results for 1935–36 indicate a higher degree of pollution than 1934–35. In Glasgow there has been almost no change. The results for Cardiff, which indicate a lower level of pollution than most of the others have a slight tendency to get worse.

The figures for tar in 1936 indicate an increase. One of the worst stations for tar deposits was Golden-lane, London, where the tar deposit in the gauge was at the rate of 10·44 tons per square mile, an increase of 243 per cent. on the general average for the last five years. The deposit of total solids which, the report states, may be regarded as a summary of all the others indicates that 1936 compares unfavourably as a whole with 1934–35. The greatest increase was found in London (Finsbury Park) with an annual deposit of total solids at the rate of 405·12 tons, or 158 per cent. of the general average. Finsbury Park also showed a large increase in the deposit of sulphates with a figure of 341 per cent. of the general average. The next greatest deposit of sulphates was at Halifax (Westview Park) with 242 per cent.

Records of the amount of sulphur gases in the atmosphere, which are believed to have a considerable effect on the deterioration of building stone and possibly (in high concentrations) on health, were made at eleven stations. The sulphur appears to be mainly a winter problem. London shows the highest average pollution of any of the cities and a very obvious seasonal variation pointing again to the domestic fires as a contributory cause, although doubtless the electric generating stations also burn more fuel in winter than in summer. Of the London stations, Westminster Bridge and Westminster City Hall show the most sulphur pollution. Last year the highest concentration was found in London, but this year the highest figure found was in Salford during December. Sulphur pollution at Greenwich appears to be about one-third of that in the vicinity of Westminster. It seems that Greenwich, although suffering from smoke haze as much as London, does not suffer equally from sulphur pollution and this suggests that in London there are sources of sulphur which are not serious sources of smoke. This again points to industrial furnaces which have no provision for absorption of sulphur.

[1] Investigation of Atmospheric Pollution. London: H.M. Stationery Office. 1937. Pp. 128. 6s.

Publicity for Venereal Disease

The Minister of Health has sent a circular asking counties and county boroughs to tell him what steps they are taking to disseminate information about venereal diseases. There is evidence, the circular says, that the public in many parts of the country are still insufficiently informed about the importance of these infections and the necessity for early and skilled treatment. The reports from treatment centres suggest that in many areas only a small proportion of women with the venereal diseases—especially with gonorrhœa—take advantage of the facilities offered. Moreover, a substantial proportion cease attendance while they are still potentially infectious. It is of the utmost importance, in the Minister's opinion, that patients should appreciate the necessity—in their own interest and in that of the community—for completing their treatment. To this end he commends a policy of "continuous education and enlightenment." So as to be able to judge how this policy may be developed and rendered more effective he is asking for full particulars of the arrangements at present made. One of the questions asked is whether a contribution is made to the British Social Hygiene Council, and if so, what work is done by the Council in the area.

"Flying Clinics" in Somerset

In order to deal with the medical supervision of maternity and child welfare work in rural areas, Dr. W. G. Savage, the medical officer of health for Somerset, has instituted a system of "flying clinics" which he considers to be far superior to a system of small fixed welfare centres covering the county. The clinics are held when and where occasion arises, often at the request of the infant visitor, and may take place at a nurse's house or at a room taken for the purpose; or visits may be undertaken to several scattered houses in a district. The visiting of children at their homes makes it possible to include those who might well be unable or unwilling to bring their children to a centre. Where the clinics prove welcome and popular they are repeated at short intervals and if the need in any such area later diminishes, the clinic can easily be discontinued and the work done elsewhere. In his annual report Dr. Savage states that the four medical officers held 311 of such sessions during 1935 and attendances totalled 3525, including 115 antenatal and 126 post-natal mothers. It would seem that such clinics might be of very real value to practitioners in outlying districts by providing opportunities for consultation where circumstances would otherwise make a second opinion very difficult to obtain.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED MAY 8TH, 1937

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 1662; diphtheria, 985; enteric fever, 36; pneumonia (primary or influenzal), 949; puerperal fever, 35; puerperal pyrexia, 99; cerebro-spinal fever, 33; acute poliomyelitis, 1; acute polio-encephalitis, 1; encephalitis lethargica, 0; dysentery, 20; ophthalmia neonatorum, 101. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on May 14th was 2969 which included: Scarlet fever, 797; diphtheria, 852; measles, 77; whooping-cough, 481; puerperal fever, 18 mothers (plus 11 babies); encephalitis lethargica, 283; poliomyelitis, 0. At St. Margaret's Hospital there were 24 babies (plus 12 mothers) with ophthalmia neonatorum.

Deaths.—In 123 great towns, including London, there was no death from small-pox, 2 (1) from enteric fever, 19 (0) from measles, 4 (3) from scarlet fever, 12 (1) from whooping-cough, 35 (5) from diphtheria, 64 (23) from diarrhœa and enteritis under two years, and 31 (7) from influenza. The figures in parentheses are those for London itself.

Five deaths from diarrhœa and enteritis under two years were reported from Liverpool and 3 each from Nottingham and Bradford. Salford, Sunderland, and Liverpool each had 3 fatal cases of diphtheria. There were 3 deaths from measles at Birmingham and 3 from whooping-cough at Liverpool.

The number of stillbirths notified during the week was 291 (corresponding to a rate of 41 per 1000 total births), including 38 in London.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Rear-Admiral P. T. Nicholls, C.B., K.H.P., to *President* for service inside Admiralty Medical Department.

Surg. Capt. R. F. P. Cory to *President* for course.

Surg. Capt. J. H. Burdett, professor of medicine at Haslar Hospital, to R.N. Hospital, Chatham.

Surg. Cmdrs. M. B. Devane and A. W. Gunn, M.V.O., to *Victory* for R.N.B., J. A. Cusack to *Pembroke* for R.N.B., and A. W. McRorie to *President* for course.

Surg. Lt.-Cdr. F. Dolan to *Drake* for R.N.B.

Surg. Lts. G. H. C. R. Critien to *Drake* for R.N. Hospl., Plymouth; D. B. Jack to *Pembroke* for R.N.B.; R. M. Kirkwood to *Pembroke* for R.N.B. and to *Pegasus*; R. M. Bremner to *Hastings*; D. D. Steele-Perkins to *Pembroke* for R.N.B. and to *Ganges*; and I. C. Macdonald to *Cardiff* and to R.N.B., Chatham.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Sub-Lt. C. P. Nicholas promoted to Surg. Lt.

ARMY MEDICAL SERVICES

The War Office announces the following appointments:

Colonel R. W. D. Leslie, O.B.E., L.R.C.P., Officer Commanding, The Queen Alexandra Military Hospital, Millbank, S.W.1, has been selected for promotion to the rank of Major-General from August 10th, 1937, and to be Deputy Director of Medical Services, Northern Command, York, in succession to Major-General G. G. Tabuteau, D.S.O., who is taking up the appointment of Director of Medical Services in India.

Colonel A. D. Fraser, D.S.O., M.C., M.B., who commands the Royal Army Medical Corps Depôt and Training Establishment at Aldershot, has been selected for promotion to the rank of Major-General from Oct. 13th, 1937, and to be a Deputy Director of Medical Services in India, in succession to Major-General D. S. Skelton, C.B., D.S.O., honorary physician to the King, who will vacate the appointment on completion of four years' service as a Major-General.

ROYAL ARMY MEDICAL CORPS

Maj. J. R. S. Mackay retires on ret. pay.

Short Service Commissions: Lt. P. Coleman to be Capt.

The following candidates have been selected for short service commissions as Lts. on probation: F. Livesey (Manchester Univ.), C. E. McCloghry (Queen's Univ., Belfast), C. McNeil (Cambridge Univ. and St. Bartholomew's Hosp.), G. G. Sherriff (Edinburgh Univ.), G. M. Curtois and E. Gareh (Guy's Hosp.), J. B. Bunting (Cambridge Univ. and St. Thomas's Hosp.), R. B. Robertson (St. Andrew's Univ.), A. T. M. Glen (Westminster Hosp.), K. F. Stephens (London Univ. and St. Bartholomew's Hosp.), G. M. Robertshaw and O. W. W. Clarke (The London Hosp.), R. L. Townsend (Cambridge Univ. and University Coll. Hosp.), F. J. S. Baker and J. B. Dancer (St. Bartholomew's Hosp.), O. Jordan (St. Mary's Hosp.), and N. Bickford (Cambridge Univ. and Middlesex Hosp.).

The following Lts. (on prob.) are secd., under the prov. of Art. 213, Royal Warrant for Pay: C. McNeil and F. J. S. Baker.

REGULAR ARMY RESERVE OF OFFICERS

Lt.-Col. G. H. Stevenson, D.S.O., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY

F. C. Angior to be Lt.; P. Hawe (late Offr. Cadet, Liverpool Univ. Contgt., Sen. Div., O.T.C.), to be Lt.; E. H. P. Smith (late Cadet Serjt., Epsom Coll. Contgt., Jun. Div., O.T.C.), to be Lt.; K. G. S. Bavidge (late Offr. Cadet, Durham Univ. Contgt. (Med. Unit), Sen. Div., O.T.C.), to be Lt; and A. G. McCallum (late Offr. Cadet, Glasgow Academy Contgt., Jun. Div., O.T.C.), to be Lt.

The Efficiency Decoration has been conferred under the terms of the Royal Warrant dated Sept. 23rd, 1930, on Maj. Alfred Pain.

TERRITORIAL ARMY RESERVE OF OFFICERS

Capt. D. M. Mackenzie from Active List to be Capt.

ROYAL AIR FORCE

Flight Lts. promoted to the rank of Squadron Leader: R. E. Alderson and J. Kemp.

INDIAN MEDICAL SERVICE

Lts. (on prob.) to be Capts. (on prob.).—S. C. Colbeck, J. H. Bowie, W. S. Empey, O.B.E., A. G. Miller, E. H. Wallace, and J. F. Thomson.

Lts. (on prob.).—G. R. Kerr, B. J. Doran, and J. D. Munroe are restd. to the estabt.

To be Lts. (on prob.): S. Shone, J. H. Walters, C. F. Mayo-Smith, W. C. Templeton, G. W. Palmer, G. F. J.

(Continued at foot of opposite page)

MEDICAL NEWS

University of Oxford

The board of the Faculty of Medicine has coöpted Prof. H. W. B. Cairns, fellow of Balliol College, for the statutory period.

University of Cambridge

On May 14th the following degrees were conferred :—

M.D.—D. G. Macdonald, J. M. Vaizey, and C. A. Clarke.
Sc.D.—*C. C. Okell, F.R.C.P.
M.B., B.Chir.—*Wilfrid Raffle, *O. L. Lander, Cuthbert Adamson, and R. S. Castle.
M.B.—*D. W. C. Gawne, *P. R. Goodfellow, *D. C. G. Ballingall, *C. E. Bevan, O. C. Lloyd, P. E. C. Manson-Bahr, E. C. Herten-Greaven, J. R. Kerr, D. F. Lawson, T. W. S. Hills, and J. R. C. Williams.

* By proxy.

Royal College of Surgeons of England

At an ordinary meeting of the council of the College held on May 13th, with Sir Cuthbert Wallace, the president, in the chair, Mr. E. E. Young and Mr. A. G. Wells were admitted to the Fellowship. The Jacksonian prize for 1936 was presented to Mr. W. E. Underwood, and the John Hunter medal and triennial prize were presented to Mr. Laurence O'Shaughnessy.

The honorary gold medal of the College was awarded to Sir Frank Colyer in recognition of his many contributions to scientific odontology and to the service of the College.

The posts of resident surgical officer and first, second, third, and fourth house surgeons at the Royal Infirmary, Bradford, and of second house surgeon at the Cumberland Infirmary, Carlisle, were approved for recognition for the six months' surgical practice required of candidates for the final examination for the fellowship.

Diplomas of membership and diplomas in tropical medicine and hygiene were granted to the candidates named on pp. 1147 and 1148 of our issue of May 8th.

Royal College of Surgeons of Edinburgh

At a recent meeting of the College, with Mr. Henry Wade, president, in the chair, the following were admitted to the fellowship :—

Alice Margaret Ross, M.B. Edin.; Geoffrey Shedden Adam, M.B. Sydney; John Frederick Birrell, M.B. Edin.; Andrew Geoffrey Butters, M.R.C.S. Eng.; John Alexander Maxwell Cameron, M.D. Manitoba; Leon Chanock, M.B. Aberd.; Graham Bruce Alastair Cowie, M.B. N.Z.; Gladys Helen Dodds, M.D. Edin.; Thomas Byerley Field, M.B. Lond.; Geoffrey Charles Huxtable Hogg, M.B. Sydney; Brian Southron Jones, M.B. Camb.; Adrian Charles Kanaar, M.R.C.S. Eng.; Alan Arnold Klass, M.D. Manitoba; William Martin Martin, M.B. Belf.; James Davidson Mill, M.B. Edin.; William Rowan Donovan Mitchell, M.B. Belf.; James Montgomery, M.B. Belf.; William Arthur Morton, M.B. Edin.; Frank Louis Rifkill, M.B. Edin.; Raphael David Rowlands, M.R.C.S. Eng.; Susanta Kumar Sen, M.B. Camb.; Raymond Shaw Trueman, M.B. Lond.; Denys Wainwright, M.B. Liverp.; Wilbert Donaldson Whyte, M.D. Manitoba; and Jack Wilton, M.R.C.S. Eng.

The following candidates received the higher dental diploma :—

C. F. Mummery, J. C. P. Besford, and D. H. T. M. Robertson-Ritchie.

(*Continued from previous page*)

Thomas, G. C. A. Jackson, R. Y. Taylor, J. W. R. Sarkies (secd.), A. E. B. de Courcy-Wheeler (secd.), N. P. Woodgate-Jones (secd.), and W. H. A. Thorne (secd.).

DEATHS IN THE SERVICES

The death occurred on May 12th in London of Brevet Colonel EDGAR JENNINGS, I.M.S. (retd.). He was born in August, 1864, and was educated at University College, London. He qualified M.R.C.S. Eng. and L.S.A. in 1886 and took the D.P.H. Camb. in 1909. He joined the I.M.S. on March 30th, 1889, and was in military employ till April, 1896, when he was appointed Civil Surgeon in the Central Provinces. He was transferred to the United Provinces as Superintendent of Prisons in November, 1898, and reverted to military duty in February, 1914. He became Major in 1901, Lt.-Col. in 1909, and retired in February, 1920, with the rank of Bt. Col.

University of Sheffield

Dr. M. S. Spink has been appointed assistant bacteriologist and demonstrator, and Mr. W. H. Waldman hon. lecturer in dental prosthetics.

The council of the University have accepted the offer of the local medical and panel committee of the West Riding of Yorkshire to award annually to final year students a prize of £25 in clinical medicine.

Ex-Services Welfare Society

The third annual conference of this society will be held at 10 A.M. at the Grosvenor Hotel, Victoria, on Friday, June 25th. Dr. Edward Mapother will be in the chair, and there will be a discussion on the control of the incidence of war neurosis. Further information may be had from the medical director of the society, 51, Victoria-street, London, S.W.1.

Scholarship in Orthopædic Surgery

Particulars will be found in our advertisement columns of a Lord Nuffield scholarship in orthopædic surgery, tenable for two years at the Wingfield-Morris Orthopædic Hospital, Oxford, followed by three months' travel. Further information may be had from Prof. G. R. Girdlestone at the hospital.

International Union against Tuberculosis

At a meeting held in Paris with Prof. Fernand Bezançon in the chair it was decided that the tenth conference of the Union be held in Lisbon from Sept. 5th to 9th. The discussion will be limited to three main subjects: radiological aspects of the pulmonary hilum and their interpretation, to be opened by Prof. Lopo de Carvalho (Portugal); primary tuberculous infection in the adolescent and the adult, to be opened by Dr. Olaf Scheel (Norway); and the open case of tuberculosis in relation to family and domestic associates, to be opened by Dr. J. Hatfield (United States) and Dr. D. A. Powell (Great Britain). Further information may be had from the secretary of the National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock-square, London, W.C.1.

Public Health Congress

The Royal Institute of Public Health and the Institute of Hygiene are holding a congress in Margate from May 25th to 29th over which Lord Horder will preside. The work of the congress is to be divided into five sections. In the section of State medicine and industrial hygiene Dr. J. Greenwood Wilson and Dr. Thomas Peirson will open a discussion on housing at the first session and at the other sessions Dr. E. R. Jones, Dr. E. W. Caryl Thomas, and Dr. N. E. Chadwick will speak. A discussion on milk will be opened by Dr. L. Meredith-Davies and Dr. H. C. Maurice-Williams. At the section of women and children and the public health Miss Margaret Basden, Colonel R. J. Blackham, Dr. Elizabeth Hurdon, Dr. W. P. H. Sheldon, Mr. William Ibbotson, Dr. D. R. MacCalman, Dr. Doris Odlum, and Dr. Letitia Fairfield will be among the speakers. There will also be a symposium on the staffing of antenatal and infant welfare clinics. Dr. R. A. Young as president of the section of tuberculosis will read a paper on the problem of the chronic open case of pulmonary tuberculosis, and Dr. F. G. Chandler, Mr. A. Tudor Edwards, Dr. J. Browning Alexander, and Dr. G. S. Todd will join in the discussion which will follow. Papers will also be read by Mr. W. Greenwood Sutcliffe, Dr. J. G. Johnstone, Dr. Alan Moncrieff, Dr. J. B. McDougall, Dr. C. H. C. Toussaint, and Dr. E. L. Sandiland. Sir Robert Stanton Woods will preside over the section of rheumatism and allied diseases and speakers will include Dr. Douglas Collins, Dr. Sinclair Miller, Mr. A. G. Timbrell Fisher, Mr. C. E. Kindersley, Dr. Gilbert Scott, Dr. R. Fortescue Fox, and Dr. F. J. Poynton. The section of nutrition and physical training will meet under the presidency of Sir Stanley Woodwark and speakers will include Prof. S. J. Cowell, Miss E. M. Widdowson, Ph.D., Dr. G. D. Morgan, and Dr. Alister Mackenzie; Dr. J. W. Starkey will open a discussion on the significance of nutrition to a medical officer of health. Further information may be had from the secretary of the institute, 28, Portland-place, London, W.1.

King's College Hospital

The Listerian Society of this hospital will meet on Wednesday, May 26th, at 8.15 P.M., when Dr. Edward Mapother will deliver a presidential address. His subject will be the psychiatry that is coming.

Medical Caricatures and Cartoons

The Staatliche Medico-Historische Sammlung in Berlin intends to hold next autumn an exhibition of caricatures and cartoons dealing with medicine. It will comprise both caricatures of individual members of the profession and cartoons concerned with various methods of treatment and diagnosis; and it will cover the past as well as the present. The organisers feel sure that many sketches will be available in various publications of medical and students' societies, while periodicals such as *Punch* and the *New Yorker* should also furnish plenty of material. Anyone in possession of such material or knowing where it may be found is asked to communicate with the Staatliche Medico-Historische Sammlung at the Kaiserin Friedrich-Haus, Robert-Koch-Platz 7, Berlin, NW.7.

British Postgraduate Medical School

An intensive course, intended primarily for practitioners, will be held at this school from May 31st to June 12th (10.30 to 4.30 daily). Among those giving lectures and demonstrations will be Prof. Thomas Beattie, Prof. G. Grey Turner, Dr. E. R. Cullinan, Mr. R. J. McNeill Love, Dr. R. T. Brain, Dr. Evan Bedford, Dr. J. R. Rees, Mr. C. I. Naunton Morgan, Dr. T. C. Hunt, Dr. James Maxwell, Dr. Janet Vaughan, Dr. J. Chassar Moir, Dr. W. Gunn, Mr. St. J. D. Buxton, and Dr. H. Gardiner-Hill. Sessions will also be held at the Central London Throat, Nose, and Ear Hospital, the Red Cross Clinic for Rheumatism, the Royal London Ophthalmic Hospital, the Hospital for Sick Children, Great Ormond-street, and the National Hospital, Queen-square. Early application for membership of this course is recommended, and further information may be had from the dean of the school, Ducane-road, London, W.12. Similar courses lasting a fortnight will begin on June 28th, Sept. 20th, Oct. 18th, and Nov. 15th.

Beginning on May 25th, at 4.30 P.M. on Tuesdays Dr. Donald Hunter will give six lectures on occupational diseases. Prof. M. Greenwood, F.R.S., will lecture on experimental epidemiology on June 2nd, 9th, and 16th at the same hour.

Medical Sickness, Annuity and Life Assurance Society

At the annual meeting of this society held in London on May 10th, Dr. F. C. Martley, the chairman of directors, reported a very satisfactory result of the actuary's valuation for the 4½ years ending last December. The total surplus on sickness and life assurance funds amounted to £225,639, of which it was proposed to distribute £153,000 as bonus and to carry forward the remainder. The bonus was to be increased from 12*s.* to 15*s.* per annum on the main class of sickness policies for each guinea per week insured, and from 23*s.* to 25*s.* per annum on the life assurance side for each £100 insured, together with a bonus on all combined policies at the same rates as if separate policies had been effected for the two benefits. During the year under review the new sums assured under life assurance amounted to close upon half a million; the total premium income in this department was now £111,856. A large proportion of the total premiums was in respect of the deferred annuities under the scheme which the society helped to operate for members of the British Medical Association and for insurance practitioners. The society's family provision policy was also proving very popular. Its chief advantage was that at the age of sixty the premiums paid did not disappear but a guaranteed sum was payable. On the sickness fund the new annual premiums totalled to £10,702, which constituted a record; the premium income on this fund amounted to £108,637. Not only were the society's rates lower than were obtainable elsewhere, but it paid a bonus at the normal termination of each contract. The expenses of management were just over 9 per cent. of the premium income, and represented a reduction on previous years. Dr. Martley concluded with a word of appreciation of the staff, in particular Mr. Bertram Sutton, manager and secretary, Mr. E. A. J. Heath, and Mr. C. L. Venus.

The meeting unanimously adopted the report of the directors and re-elected those who retired by rotation (Dr. W. Knowsley Sibley and Mr. R. J. McNeill Love). On the proposition of Mr. Cecil Wakeley, seconded by Dr. Fairfield Thomas, the meeting also unanimously agreed to an increase in the remuneration of the directors. Sir William Willcox moved a vote of thanks to the chairman and this was seconded by Dr. G. de Bec Turtle.

Inter-Hospitals Sports

The sixty-sixth annual inter-hospitals sports will be held on Wednesday, May 26th, at 2.30 P.M., at the Duke of York's Headquarters, Chelsea.

Greater London Provident Scheme for District Nursing

For nearly 70 years district nursing has been provided in London largely as a charity, but as the work grew it has been found necessary to ask for payment, by the visit, from those who could afford it. This sometimes caused a financial strain in times of illness. To avoid this under the new scheme launched last month (*Lancet*, April 24th, p. 1029) payment will be made in the form of small weekly contributions. Any person who works in a place where five or more people are willing to join the scheme, and whose earnings do not exceed £6 per week, can call upon the services of a district nurse for himself and his dependents for a weekly contribution of 1*d.* If all his fellow-workers take advantage of the scheme, the subscription for each employee will be only ½*d.* per week. Anyone whose income exceeds £6 per week but does not exceed £400 a year may join the scheme for a weekly contribution of 1½*d.* Further information may be had from the offices of the scheme, 1, Sloane-street, London, S.W.1.

Maternity and Child Welfare Conference

The seventh English-speaking conference on maternity and child welfare will be held at B.M.A. House, Tavistock-square, London, W.C., on June 1st, 2nd, and 3rd. The following is a list of speakers and subjects: Dr. Mary Blacklock, Dr. Mabel Brodie, and Mrs. Randal Hosking (the promotion of maternity and child welfare in backward and in rural areas); Mr. R. J. Howard Roberts and Miss Eleanor Harwarden (progressive legislation in connexion with maternity and child welfare); Dr. Eric Pritchard, Dr. Ursula Cox, and Mrs. Charlesworth (the education of parents in the care of their children); Dr. Robert McCance and Dr. Reginald Jewesbury (nutritional problems in relation to mother and child); Dr. Margaret Lowenfeld and Dr. J. A. Hadfield (the future of preventive psychology in relation of parent and child); Dr. B. E. Schlesinger and Mr. E. S. Evans (preventive work for cripples and invalid children). Visits will also be paid during the conference to various institutions in and near London, and on May 30th and 31st a short post-graduate course has been arranged by the maternity and child welfare group of the Society of Medical Officers of Health. A child welfare exhibition will be held in connexion with the congress at Woburn House (exactly opposite B.M.A. House). Further information may be obtained from the hon. secretary, Carnegie House, 117, Piccadilly, W.1.

Appointments

ANSON, C. E. H., M.B. Lond., has been appointed Medical Superintendent of the Royal National Sanatorium, Bournemouth.

ASCROFT, P. B., M.S. Lond., F.R.C.S. Eng., Assistant Surgeon to the Middlesex Hospital.

BIRNIE, C. R., M.D., M.R.C.P. Lond., D.P.M., First Assistant Medical Officer at West Park Hospital, L.C.C.

*BULLOUGH, A. S., M.B. Manch., Resident Assistant Medical Officer (Grade II) at Withington Hospital, Manchester.

*CURTIS, F. R., M.B. Leeds, Assistant Pathologist at Whitechapel L.C.C. Clinic.

DALZELL, A. C., M.D. Lond., D.P.M., Second Assistant Medical Officer at Bexley Hospital, L.C.C.

GILMOUR, J., M.B., F.R.C.S. Eng., Hon. Surgeon to the Royal Victoria Infirmary, Newcastle-upon-Tyne.

McGUCKIN, FRANCIS, M.D. Durh., F.R.C.S. Edin., Consulting Surgeon for Throat, Nose, and Ear Cases at the Newcastle-upon-Tyne General Hospital.

PENNYBACKER, J. B., M.B. Edin., F.R.C.S. Eng., First Assistant to the Department of Neuro-surgery at the London Hospital.
PERCIVAL, R. C., F.R.C.S. Eng., First Assistant to the Department of Gynæcology and Obstetrics at the London Hospital.
*SCHILLER, SOPHIE, M.B. Witwatersrand, D.C.O.G., Resident Assistant Obstetrical Officer at Withington Hospital, Manchester.
*SULLIVAN, J. F., M.B. Dubl., D.P.H., Resident Assistant Medical Officer (Grade II) at Baguley Sanatorium, Manchester.
WARWICK, W. TURNER, M.B. Camb., F.R.C.S. Eng., Surgeon to the Middlesex Hospital.

Victoria Cottage Hospital, Barnet.—The following appointments are announced :—
MONCRIEFF, ALAN, M.D., F.R.C.P. Lond., Hon. Consulting Children's Physician ;
READ, C. D., M.B. N.Z., F.R.C.S. Edin., M.C.O.G., Hon. Gynæcologist ; and
MUIR, E. G., M.S. Lond., F.R.C.S. Eng., Hon. Consulting Surgeon.

Certifying Surgeons under the Factory and Workshop Acts : Dr. B. E. HAWKINS (Beckenham District, Kent).

* Subject to confirmation.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MONDAY, May 24th.
Odontology. 8 P.M. (Royal College of Surgeons, Lincoln's Inn-fields, W.C.), annual general meeting. Sir Frank Colyer : Demonstration of New Museum Specimens.
TUESDAY.
Meeting of Fellows. 5 P.M., nomination of officers and council for 1937-38. 5.30 P.M., ballot for election to the fellowship.
Medicine. 5 P.M., annual general meeting.
Pathology. 7 P.M., summer meeting at the Wellcome Physiological Research Laboratories, Langley Court, Beckenham, Kent.
WEDNESDAY.
Comparative Medicine. 5 P.M., annual general meeting. Sir Weldon Dalrymple-Champneys : Snake-venom, its Source, Method of Collection, and Uses. (Illustrated by an extract from a coloured film taken in Brazil.) Mr. G. A. H. Buttle, D.Sc., and Dr. H. J. Parish : Observations on the Chemotherapy of Bacterial Infections in Mice. Dr. A. W. Stableforth : Cutaneous Streptothricosis—a Case in this Country. Mr. R. Hudson : Cutaneous Streptothricosis—the Disease in other Countries.
THURSDAY.
Urology. 8.30 P.M., Mr. James Carver : Observations on Genito-urinary Tuberculosis.
FRIDAY.
Disease in Children. 5 P.M. (Cases at 4.30 P.M.) Annual general meeting. Mr. Poole Wilson and Dr. C. Paget Lapage : 1. Specimen of a Case of Neuroma of the Spinal Cord. Dr. F. Dudley Hart (introduced by Dr. B. Schlesinger) : 2. Mediastinal Neuroblastoma. Dr. O'Donoghue (introduced by Mr. Harold Edwards) : 3. An Unusual Deformity of the Genitalia. Dr. Wilfrid Sheldon and Mr. Harold Edwards : 4. Congenital Rectosigmoid Stricture.
Epidemiology and State Medicine. 8 P.M., annual general meeting. 8.15 P.M. (with Section of Medicine), Mr. R. Frederick : Air Conditioning. Mr. C. W. Price and Dr. E. M. Fraenkel will also speak.

BRITISH INSTITUTE OF RADIOLOGY, 32, Welbeck-street, W.
THURSDAY, May 27th.—6.30 P.M., annual general meeting.
Medical Committee.
FRIDAY.—11 A.M., visit to the radiological department of the Queen Alexandra Military Hospital, Millbank, S.W. 5 P.M., case demonstration and discussion.

MEDICO-LEGAL SOCIETY.
THURSDAY, May 27th.—8.30 P.M. (Manson House, 26, Portland-place, W.), Dr. Alexander Baldie : The Prevention and Treatment of Delinquency.

EUGENICS SOCIETY.
TUESDAY, May 25th.—5.15 P.M. (Burlington House, W.), Dr. R. R. Kuczynski : Future Trends in Population.

ASSOCIATION OF INDUSTRIAL MEDICAL OFFICERS.
FRIDAY, May 28th.—9.30 A.M., Business meeting (Metropole Hotel, Swansea). 10.30 A.M., Visit to Nickel Refinery, Clydach. Noon, Visit to Clydach Hospital with demonstration of X rays, by Dr. A. J. Amor. 2.30 P.M., Visit to Tereni Colliery.

CHELSEA CLINICAL SOCIETY.
TUESDAY, May 25th.—8.30 P.M. (Hotel Rembrandt, Thurloe-place, S.W.), Dr. Philippe Bauwens and Dr. Howard Humphris : Short Wave Therapy.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.
TUESDAY, May 25th, and THURSDAY.—5 P.M., Dr. Edwin Bramwell : Clinical Reflections upon Muscles, Movements, and the Motor Path. (Croonian lectures.)

UNIVERSITY OF LONDON.
MONDAY, May 24th.—5.30 P.M. (University College, Gower-street, W.C.), Mr. D. McKie, D.Sc. : Development of Theories Regarding Combustion and Respiration in the Eighteenth Century.
MONDAY, May 24th, TUESDAY, and WEDNESDAY.—5.30 P.M. (Imperial College of Technology, S.W.), Prof. I. M. Heilbron, F.R.S. : The Chemistry of the Carotenoids and Vitamin A. 5.30 P.M. (University College), Prof. Lewis H. Weed : The Meninges and the Cerebro-spinal Fluid.
TUESDAY.—5.30 P.M. (University College), Mr. F. G. Young, Ph.D. : Development of Certain Aspects of Metabolism during the Nineteenth Century.

ROYAL INSTITUTE OF PUBLIC HEALTH.
TUESDAY, May 25th, to SATURDAY.—Congress at Margate with the Institute of Hygiene.

CHADWICK LECTURE.
WEDNESDAY, May 26th.—5.30 P.M. (Manson House, 26, Portland-place, W.), Prof. J. G. Fitzgerald (Toronto) : Preventive Medicine—An Avenue of Goodwill.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.
TUESDAY, May 25th.—4.30 P.M., Dr. Donald Hunter : Occupational Diseases.
WEDNESDAY.—Noon, clinical and pathological conference (medical). 2 P.M., Mr. E. J. King, Ph.D. : Acid-base Metabolism. 3 P.M., clinical and pathological conference (surgical).
THURSDAY.—2.15 P.M., Dr. Duncan White : Radiological Demonstration. 3.30 P.M., Mr. A. K. Henry : Demonstrations of the Cadaver of Surgical Exposures.
FRIDAY.—2 P.M., operative obstetrics. 2.30 P.M., Mr. Russell Howard : Diseases of the Breast. 3 P.M., clinical and pathological conference (obstetrics and gynæcology).
Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.
MONDAY, May 24th.—10 A.M., Dr. Post : X ray film demonstration, skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical and gynæcological wards, medical, surgical, and gynæcological clinics. 4.15 P.M., Mr. Green-Armytage : Pelvic Inflammation.
TUESDAY.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics.
WEDNESDAY.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics. 4.15 P.M., Dr. Redvers Ironside : Trigeminal Neuralgia and its Treatment.
THURSDAY.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary, and eye clinics. 4.15 P.M., Mr. Davenport : Treatment of Commoner Ophthalmic Conditions.
FRIDAY.—10 A.M., medical wards, skin clinic. Noon, Lecture on Treatment. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Dr. Owen : Artificial Feeding in Infants.
SATURDAY.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.
The lectures at 4.15 P.M. are open to all medical practitioners without fee.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, May 24th, to SUNDAY, May 30th.—BROMPTON HOSPITAL, S.W. All-day course in thoracic surgery.—PRINCESS ELIZABETH OF YORK HOSPITAL, Shadwell, E. Sat. and Sun., Course in children's diseases.—ST. JOHN'S HOSPITAL, 5, Lisle-street, W.C. Afternoon course in dermatology.—MAUDSLEY HOSPITAL, Denmark-hill, S.E. Afternoon course in psychological medicine.

ST. MARY'S HOSPITAL, W.
TUESDAY, May 25th.—5 P.M. (Institute of Pathology and Research), Prof. E. C. Dodds : Observations on the Structure of Substances, Natural and Synthetic, and their Reaction on the Body.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, May 27th.—2 P.M., Mr. J. H. Doggart : Origin and Treatment of Squint. 3 P.M., Dr. W. G. Wyllie : Pitfalls in the Diagnosis of Tuberculous Meningitis. Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle-street, W.C.
MONDAY, May 24th.—5 P.M., Dr. H. MacCormac : Treatment of Syphilis.
TUESDAY.—5 P.M., Dr. W. N. Goldsmith : Acneiform Eruptions.
THURSDAY.—5 P.M., Dr. W. Griffith : Bullous Eruptions.
FRIDAY.—5 P.M., Dr. A. M. H. Gray : Scleroderma and Allied Conditions.

HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.
THURSDAY, May 27th.—3 P.M., Dr. Russell Brain : Clinical Demonstration.

MANCHESTER ROYAL INFIRMARY.
TUESDAY, May 25th.—4.15 P.M., Dr. T. H. Oliver : The New Insulins.
FRIDAY.—Dr. Fergus R. Ferguson : Demonstration of Neurological Cases.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.
WEDNESDAY, May 26th.—4.15 P.M. (Ophthalmic Institution), Dr. J. N. Tennent : Tumours of the Eye.

NOTES, COMMENTS, AND ABSTRACTS

THE RED CROSS RHEUMATISM CLINIC

THE annual report of the British Red Cross Society's Clinic for Rheumatism shows that the work is steadily increasing and that the attendances in the general department were 5812 more than in any previous year. While this increase is a tribute to the value of the work carried out at the clinic the figures also imply that its accommodation is being unduly strained, and the burden imposed on the staff is heavy. If long periods of delay before patients urgently needing treatment can be accepted are to be avoided, it is essential that the premises should be enlarged. We understand that schemes to this end are already under consideration and it is to be hoped that the authorities will soon be in a position to carry them out. More funds are urgently needed. The results of treatment according to the records appear to be very satisfactory; 60·3 per cent. patients were discharged free from symptoms and a further 29 per cent. were definitely improved. The medical board modestly point out that these figures should be accepted with some reserve. The clinic is not only a centre for treating professional and industrial workers; research is being actively pursued on the valuable clinical material available under the direction of a special committee formed last year for the study and investigation of rheumatism. The lack of in-patient accommodation hampers research and that also should be made available when funds permit.

INSTITUTIONAL TREATMENT OF EPILEPSY IN SCANDINAVIA

THE alertness of the Scandinavian countries about each other's virtues and vices is partly responsible for the high level of their culture. For one country to lag behind in some good work is to invite disparaging comparisons in the other countries; and at the present time, Denmark, Sweden, and Finland are being held up as examples to Norway as regards the institutional treatment of epilepsy. Denmark comes first in this comparison with 2 beds for epileptics for every 10,000 inhabitants; Finland comes next with 1 bed; and Sweden comes third with 0·9 bed; whereas the corresponding figure for Norway is only 0·25. A census of epileptics conducted in Norway in 1929 by medical officers of health showed that there must be about 1900 epileptics, of whom more than 400 require institutional treatment. It is more than probable that this census failed to include many slight cases of epilepsy, and the figures quoted are assuredly under-estimates. For the more than 400 epileptics requiring institutional treatment there are at present only 68 beds in Norway, and this glaring discrepancy between supply and demand has led to the appointment by the Government of a committee charged with the task of estimating the country's requirements for beds for epileptics, and with drafting legislation for their care. This committee's studies have been extended to England and Germany as well as to the other Scandinavian countries.

The experiences of Denmark have proved most instructive. She is the only Scandinavian country in which a hospital for adult epileptics has been created. It is "Filadelfia," with accommodation for 445 epileptics over the age of fifteen. Of its seven medical officers, two are specialists in neurology and mental disease. Epileptics who are imbecile from birth are drafted as much as possible into institutions for the mentally defective, and the inmates of Filadelfia are encouraged to find recreation in work such as carpentering, shoe-making, tailoring, bookbinding, &c. In addition to this hospital there are four smaller institutions, the accommodation of all five being 680 beds. In Sweden there are eight institutions for epileptics, and "Stor Sköndal," with 212 beds, serves as the central hospital in the neighbourhood of Stockholm. Altogether there are some 700 beds for epileptics in Sweden, and it is the ambition of Prof. Petrén to centralise the institutional treatment of epilepsy as much as possible, and to attach to a large epileptic hospital a department for mentally defective and insane epileptics. In Finland, with some 300 beds for epileptics, there is the same tendency as in Denmark and Sweden to favour a large central institution. It is held that the larger the institution, the more skilful will be the treatment. The institution which is too small to employ a resident medical officer is bound to give comparatively inadequate service.

DANGERS OF ARTERIOGRAPHY

SINCE arteriography is sometimes recommended as innocuous E. Verschuyl has thought it well to bring forward a number of cases in which it gave rise to complications (*Ned. Tijdschr. Geneesk.* 1937, **81**, 1007). Two of these were in his own practice.

(1) A man, aged 70, was admitted to hospital with a history of sudden pain and numbness of the right leg. The entire limb was blanched and could not be moved actively; it was tender and felt cold. No pulsation could be detected in the dorsalis pedis, popliteal or femoral arteries. The vessels did not feel hard or thickened. A systolic murmur was heard over the heart. The diagnosis was thought to lie between acute spasm and embolic obstruction of the femoral artery, and arteriography was decided upon. The abdominal aorta was punctured, 20 c.cm. of 35 per cent. Perabrodil was rapidly injected, and an X ray photograph was taken. This showed that the solution had not passed on the right side beyond the upper part of the common iliac artery. Immediately afterwards, however, the pain ceased, the limb resumed its normal colour and temperature, and could be moved actively. A diagnosis of spasm was made. A few days later the patient suddenly died and at autopsy a rupture of the ascending aorta was found. Verschuyl attributes this to damage caused by the injected fluid, for apart from a few small plaques of atheroma the aorta appeared healthy.

(2) A woman, aged 28, complained of pain in the right forearm, with cyanosis and swelling. Other abnormal signs were absent and there was no history of trauma. The diagnosis of angioneurosis was made and arteriography was performed, 20 c.cm. of perabrodil being injected into the subclavian artery. The patient was immediately seized with a typical epileptic fit lasting about two minutes and followed by severe headache. She recovered completely in about 30 hours, and the arteriogram revealed no abnormality.

Verschuyl concludes that arteriography is by no means devoid of danger and that it should not be lightly employed.

PULMONARY EMBOLISM AFTER INJECTIONS INTO VARICOSE VEINS

Dr. Anders Westerborn of Varberg, Sweden, has recently published [1] a study which should do much to dispel fears about fatal pulmonary embolism more or less directly due to the thrombosis induced by injections of various substances into varicose veins. His investigations were in part prompted by a lurking suspicion that such fatalities do not always get into the medical press, the urge to publish successes being notably greater than any willingness to admit disasters however instructive they may be. In 1928 H. O. McPheeters and C. O. Rice (*J. Amer. med Ass.* 1928, **91**, 1090) found in reports by various authors a mortality of only 0·0075 per cent., and a similar review by K. Kettel in 1931 (*Zbl. Chir.* 1931, **58**, 1498) raised the figure to 0·017 per cent. To avoid the sources of error inherent in such compilations, Westerborn addressed inquiries to all the 93 hospitals in Sweden. Information was obtained from 86, and he was able to calculate that in the period 1927–34 some 30,000 patients with varicose veins must have

[1] *Acta chir. scand.* 1937, **79**, Fasc. iv, p. 321.

been treated in the 93 hospitals by the injection of thrombogenic solutions. The 11 deaths from pulmonary embolism and the 6 severe cases with recovery in this material represented what may be considered as a comparatively accurate picture of the embolism risk. The mortality was 0·036 per cent.—considerably higher than that obtained from other published work, yet many times lower than that for more radical operations on varicose veins. In the five-year period 1921–25, 6994 operations not yet ousted by the injection treatment were performed on varicose veins in 82 Swedish hospitals, and 18 patients died of pulmonary embolism—a mortality of 0·26 per cent., the corresponding figure obtained by McPheeters and Rice being 0·54 per cent. (36 deaths from embolism among 6671 cases). Though this comparison with operative treatment is favourable to the injection treatment it is not quite fair to the latter, which is still in its youth and many of whose fatalities may be due to avoidable mistakes. Westerborn traces a goodly proportion of the embolism fatalities to infections, local or general, and to the stagnation of circulation promoted by confinement to bed after an injection. He regards the bedridden state as a definite contra-indication and he is in favour of keeping a patient out of bed as much as possible just after injections. His comparison of the embolism-rates for the different chemicals used shows that there is little to choose between them so long as they are not introduced as isotonic solutions. It is curious how different countries prefer different chemicals. In the past, quinine-urethane has been the most popular in Sweden, America, and England, whereas Germany and Central Europe have preferred solutions of sugar and sodium chloride. Now it seems that quinine-urethane is being displaced by sodium morrhuate which has the advantage of not provoking necrosis of the tissues when a perivascular injection is given by mistake.

CECIL HOUSES

FOUNDED ten years ago by Mrs. Cecil Chesterton, the public lodging-houses for women known as Cecil Houses fill what was a very serious gap in the provision for London's homeless. With the reopening this year of the house in Devonshire-street, Theobald's-road, there will be five houses in the London area, each providing clean beds, hot baths, and facilities for washing clothes for from fifty to sixty women at a cost of a shilling a night for each woman. There is also accommodation for babies at the houses, which are non-sectarian; any homeless woman is admitted and no questions are asked. Once the initial capital expenditure of some £7000 is found, a house becomes entirely self-supporting, although subscriptions are much needed for replenishments and the extension of activities. In addition to their primary object of providing lodging, the staff are able to find employment for a number of those who are in need of it and do much to help the women to regain their self-respect by the distribution of gifts of clothing and boots and shoes.

NEW PREPARATIONS

THE Crookes Laboratory (British Colloids Ltd.), of Park Royal, London, N.W.10, now issue their Collosol Brand PHOSPHO-MANDELATE in a box containing all that the patient wants for carrying out six days' treatment. The ammonium phosphate is white; the mandelic acid is coloured pink; and containers showing the exact doses are provided, together with a book of test papers for determining the approximate *p*H of the urine.

The PROPHYLL ATOMISER is used as a spray for throat or nose. Its chief advantages are that it has a screw cap which closes it when travelling; that it can be conveniently used with one hand; and that it provides a fine vapour. The manufacturers (Prophyll Co., Ltd., 7, Princes-street, S.W.1) make an oily antiseptic fluid (Prophyll No. 1) for use, as a spray, in the prevention or treatment of colds and influenza. The formula is given as hexyl resorcinol 0·025; phenol, 0·2; iodine 0·02; sodium ricinoleate, 0·1; menthol, 0·02; liquid paraffin to 100.

A booklet on the Technique of Parenteral Calcium Medication with special reference to CALCIUM-SANDOZ is published by J. Flint, Sandoz Products, 134, Wigmore-street, London, W.1. It points out that the ease and safety of giving calcium in adequate doses by injection has extended the applications, and improved the results, of this form of treatment. With excellent illustrations it describes exactly how Calcium-Sandoz is best injected, including an account of intrapleural administration and of intranasal submucous injection as recommended in THE LANCET by Prof. Bárány shortly before his death. The manufacturers claim that a satisfactory solution of calcium gluconate is by no means easily prepared, and state that Calcium-Sandoz, the first to be introduced, is always tested clinically, for each batch, before general issue. The ampoules now contain calcium gluconogalactogluconate, which has advantages over the ordinary gluconate.

Particulars of the many bismuth products of PHARMACEUTICAL SPECIALITIES (May and Baker) Ltd., Dagenham, are given in a small book on BISMUTH THERAPY in which they summarise the history of bismuth as a remedy, its mode of action, its clinical application, and the way in which it is used. For the intravenous injection of bismuth it is recommended that the needle when introduced should have an empty syringe attached to it. When, by withdrawing blood, it has been ascertained that the needle is in the vein a second syringe filled with the drug is substituted for the first. Deep subcutaneous injection may be preferred; but in any case deep and firm massage is advisable to spread the bismuth after its administration. Precautions against stomatitis and other possible complications are mentioned.

A NEW REMEDY FOR HÆMORRHOIDS

IN a preliminary note on the use of an extract of *Microscolex dubius* in the treatment of hæmorrhoids H. E. Mercante and J. E. H. Piazza describe their results in 12 cases (*Rev. sud.-amer. Endocrin.* 1937, **20**, 61). The method adopted was continuous application on cotton-wool of a 5 per cent. oily solution of an extract of the whole worm. The result, it is said, in all 12 cases was cessation of pain, pruritus, and other subjective symptoms, and bleeding too ceased almost at once. In recent cases a course of treatment lasting 15–20 days was followed by clinical cure with no relapses during a period of observation of nine months. The solution was successfully employed also in a case of varicose ulceration of four years' duration, and the ulcers were fully healed after 11 days of treatment. Clinical and laboratory investigations of the new remedy are being continued.

CLINICAL AND LABORATORY PHOTOGRAPHY.—Messrs. Kodak Ltd. have constructed what they call a clinical camera outfit—an "advanced photographic unit" intended to have a precision comparable with that of other instruments that scientific workers are accustomed to handle. It is meant to satisfy the exacting demands of the medical worker, but also to find many applications outside medical work. Particulars may be had from the makers at Kodak House, Kingsway, London, W.C.2.

Vacancies

For further information refer to the advertisement columns

Altrincham General Hosp.—Sen. and Jun. H.S., at rate of £150 and £120 respectively.
Bangor, Caernarvonshire and Anglesey Infirmary.—Sen. H.S., £170.
Bath City.—M.O. for Poor Law Infirmary, £500.
Birkenhead Education Committee.—Asst. School M.O., £500.
Blackburn County Borough.—Asst. School M.O. and Asst. M.O.H., £600.
Blackburn Royal Infirmary.—Res. H.S., £175.
Blackpool Corporation.—Additional Med. Asst., £500.

Bournemouth, Royal National Sanatorium.—Res. Asst. M.O., £200.
Bradford Royal Infirmary.—Hon. Asst. Physician.
Brighton, Royal Alexandra Hosp. for Sick Children.—H.S., £120.
Brighton, Royal Sussex County Hosp.—H.P., £150.
Brighton, Sussex Eye Hosp., Eastern-road.—H.S., at rate of £150.
British Postgraduate Medical School, Ducane-road, W.—Asst. in Bacteriology in Dept. of Pathology, £300.
Chelsea Hosp. for Women, Arthur-street, S.W.—Jun. H.S., at rate of £100.
Cheltenham General and Eye Hosp.—H.S., £150.
Connaught Hosp., Walthamstow, E.—Sen. Res. M.O., at rate of £175. Also H.P., H.S., and Cas. O., each at rate of £110.
Coventry and Warwickshire Hosp.—Res. H.S., Cas. O., and Res. H.S. to Aural and Ophth Depts., each £150.
Coventry, City of.—Asst. M.O. (Woman), £500.
Derbyshire Hosp. for Sick Children.—Res. H.S., at rate of £130.
Dewsbury and District General Infirmary.—Sen. H.S., £200. Also Second H.S., £150.
Dudley, Guest Hosp.—Second H.S., £120.
Eastbourne, Princess Alice Memorial Hosp.—Surgeon. Also Asst. Physician.
Edinburgh Royal Infirmary.—Jun. Asst. Radiologist, £350.
Elizabeth Garrett Anderson Hosp., Euston-road, N.W.—Temp. Hon. Asst. Surgeon and Temp. Hon. Asst. Obstet. Surgeon.
Evelina Hosp. for Sick Children, Southwark, S.E.—H.P., at rate of £120.
Gloucestershire Royal Infirmary.—H.S., at rate of £150.
Gordon Hosp. for Rectal Diseases, Vauxhall Bridge-road, S.W.—Res. H.S., £150.
Guildford, Royal Surrey County Hosp.—H.S., at rate of £150.
Hampshire Joint Mental Health Institutions Committee.—Principal Medical Adviser, &c., £1400.
Hawkmoor Sanatorium, near Bovey Tracey.—Res. Asst. M.O., at rate of £250.
Hebron, St. Luke's Hosp.—Asst. Res. M.O., £200.
H.M. Colonial Medical Service.—Vacancies for M.O.'s, £600–£700.
Hosp. for Sick Children, Great Ormond-street, W.C.—Res. H.P. and Res. H.S., each at rate of £100.
Hosp. of St. John and St. Elizabeth, 60, Grove End-road, N.W.—Ophth. Surgeon.
Hosp. for Women, Soho-square, W.C.—Res. M.O., at rate of £100.
Huddersfield Royal Infirmary.—Cas. O., at rate of £200.
Hull Royal Infirmary.—H.S. to Ophth. and Ear, Nose, and Throat Depts., Second H.P., and Second Cas. O., each at rate of £150.
Ilford Borough.—Res. M.O. for Maternity Home, £400.
Ilford, King George Hosp.—Reg. Surg. O., £250. Med. Reg., £150. Also Two H.S.'s, each at rate of £100.
Isleworth, West Middlesex and County Hosp.—Cas. M.O., at rate of £350.
Kensington Royal Borough.—Deputy M.O.H., £900.
Kettering and District General Hosp.—Res. M.O. and Second Res. M.O., at rate of £160 and £140 respectively.
Kingston and District Hosp.—Res. Asst. M.O., at rate of £375.
Lancashire County Council.—Asst. County M.O.H., £800. Also Temp. Asst. Tuber. O., 15 guineas weekly.
Leamington Spa Royal Borough.—M.O.H. and School M.O., £800.
Liverpool University.—Research Asst. in Dept. of Medicine, £600. Also Demonstratorship in Anæsthesia, Part-time, £100.
London Homœopathic Hosp., Great Ormond-street, W.C.—Gynæcological H.S., at rate of £100.
London Lock Hosp., 283, Harrow-road, W.—Res. M.O. to Male Dept., at rate of £175.
London University.—University Readership in Obstetrics and Gynæcology for British Postgraduate Med. School, £800.
Luton Borough.—Res. M.O. to New Maternity Hosp. and Asst. M.O.H., £350.
Manchester, Ancoats Hosp.—Res. Surg. O., £200.
Manchester, Duchess of York Hosp. for Babies.—Hon. Asst. Anæsthetist.
Manchester Royal Infirmary.—Med. Chief Asst., £300.
Middlesex County Council.—Asst. M.O., £600. Also Asst. Dental O., £500.
Ministry of Health, Whitehall.—Staff M.O.'s, £847.
Newport, Mon., Royal Gwent Hosp.—Two H.S.'s, each at rate of £135.
Nottingham General Dispensary.—Res. Surgeon, £300.
Nottingham General Hosp.—H.S. for Ear, Nose, and Throat Dept. and two Res. Cas. O.'s, each at rate of £150.
Oldham Municipal Hosp.—Res. Asst. M.O., at rate of £200.
Oldham Royal Infirmary.—H.S., at rate of £175.
Oxford, Wingfield-Morris Orthopædic Hosp., Headington.—Lord Nuffield Scholarship in Orthopædic Surgery, £200.
Plymouth, Prince of Wales's Hosp., Devonport.—Jun. H.S., at rate of £120.
Plymouth, Prince of Wales's Hosp., Greenbank-road.—H.P., at rate of £120.
Preston and County of Lancaster Royal Infirmary.—R.M.O. and H.S., each £150.
Princess Beatrice Hosp., Earl's Court, S.W.—Med. Reg., 50 guineas.
Princess Elizabeth of York Hosp. for Children, Shadwell, E.—H.P., H.S., and Cas. O., each at rate of £125.
Queen Charlotte's Maternity Hosp., Marylebone-road, N.W.—Hon. Gen. Surgeon. Also Obstet. Surgeon to In-patients.
Queen's Hosp. for Children, Hackney-road, E.—H.P. and Cas. O., each at rate of £100.
Queen Mary's Hosp. for the East End, Stratford, E.—Res. M.O., Two Cas. and Out-patients O.'s, each at rate of £150. Also Two H.S.'s, H.P., Obstet. H.S., and Res. Anæsthetist and H.P., each at rate of £120.
Reading, Royal Berkshire Hosp.—Res. Cas O., and H.S. to Special Depts., each at rate of £150.
Rotherham Hosp.—Cas. H.S., £150.
Royal Free Hosp., Gray's Inn-road, W.C.—First H.P. Also Res. Cas. O., at rate of £150.
Royal Naval Medical Service.—M.O.'s.
Royal Waterloo Hosp. for Children, &c., Waterloo-road, S.E.—Cas. O., at rate of £150. Also H.S., at rate of £100.
St. John's Hosp., Lewisham, S.E.—Orthopædic Registrar.
St. Thomas's Hosp., S.E.—Physician.
Salford Royal Hosp.—Psychiatrist, £52.
Salisbury General Infirmary.—Res. M.O., £250. Also H.P., at rate of £125.
Sheffield Royal Infirmary.—Ophth. H.S., Aural H.S. Also H.S., each at rate of £80.
Shrewsbury, Royal Salop Infirmary.—Res. H.P., at rate of £160.
Southampton, Royal South Hants and Southampton Hosp.—H.P., Cas. O., and Res. Anæsthetist and H.S. to Ear, Nose, and Throat Dept., at rate of £150. Also Locum Tenens Radium Officer, 12 guineas per week.
Southend-on-Sea General Hosp.—Surg. Reg., £275.
Staffordshire County Council.—Res. Asst. M.O. for Wordsley Public Assistance Institution, at rate of £300.
Stockport, Stepping Hill Hosp.—Res. Asst. M.O., at rate of £200.
Stoke-on-Trent, Burslem, Haywood, and Tunstall War Memorial Hosp.—Res. H.S., at rate of £175.
Stroud General Hosp.—Res. M.O., at rate of £160.
Taunton Borough.—Part-time Asst. to M.O.H., 1½ guineas per session.
Torquay, Torbay Hosp.—H.P., £175.
University College Hosp., Gower-street, W.C.—Hon. Asst. Physician.
Weir Hosp., Grove-road, Balham, S.W.—Jun. Res. M.O., £150.
West London Hosp., Hammersmith-road, W.—Jun. Asst. M.O. for V.D. Dept., £350. Also H.P. and Two H.S.'s, each at rate of £100.
Willesden General Hosp., Harlesden-road, N.W.—Hon. Clin. Assts. to Out-patient Dept.
Winchester, Royal Hampshire County Hosp.—Res. Surg. O. and H.P., at rate of £200 and £125 respectively.
Worcester Royal Infirmary.—H.S. to Gynæcological Dept., £140.
Worksop, Victoria Hosp.—Sen. and Jun. Resident, £150 and £120 respectively.
The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Old Meldrum (Aberdeen), Quorn (Leicester), Shanklin (Isle of Wight), Bradford East (Yorks, West Riding), Hessle (Yorks, East Riding), and Innerleithen (Peebles).

Births, Marriages, and Deaths

BIRTHS

COOKE.—On May 12th, at Fulwood, Preston, the wife of R. T. Cooke, M.D., of a son.
ETTLES.—On May 12th, the wife of Capt. D. C. McC. Ettles, R.A.M.C., of a son.
FRANCIS.—On May 6th, at Arnold, Notts, the wife of Dr. John H. Francis, of a son.
GRAHAM.—On May 12th, the wife of Dr. Kenneth Graham, 18, Taviton-street, W.C., of a son.
ISBISTER.—On May 12th, at Devonshire-place, W., the wife of Dr. Rollo Isbister, of a daughter.
JONES.—On May 9th, at Ipswich, the wife of Dr. Ronald Jones, of a son.
KETTLEWELL.—On May 14th, at Cranleigh, the wife of Dr. Bernard Kettlewell, of a daughter.
MELLOWS.—On May 14th, the wife of Dr. H. S. Mellows of West Wickham, Kent, of a son.
ORMEROD.—On May 14th, at Clifton, the wife of Dr. G. L. Ormerod, of a son.
RAMAGE.—On May 12th, at Stoke-on-Trent, the wife of Mr. John Steven Ramage, F.R.C.S., of a daughter.
TUCKETT.—On May 13th, at Tonbridge, the wife of Mr. Cedric Tuckett, F.R.C.S., of a son.
WALKER.—On May 9th, at Wolverhampton, the wife of Mr. Robert Milnes Walker, F.R.C.S., of a daughter.
WILSON.—On May 12th, at Radyr, Glam., the wife of Dr. John Greenwood Wilson, of a daughter.

DEATHS

ADAMS.—On May 10th, at Eastbourne, James Adams, M.D. Aberd., F.R.C.S. Eng., aged 87.
BECKETT.—At Naivasha, Kenya Colony, Francis Henry Mears Allden Beckett, M.B. Camb., late of Ely, Cambridgeshire.
BRUSHFIELD.—On May 17th, at St. Leonards-on-Sea, Thomas Brushfield, M.D. Camb., aged 79.
DODSON.—At C.M.S. Hospital, Kerman, Iran, George Everard Dodson, M.R.C.S. Eng.
EDGE.—On May 17th, at Wolverhampton, Frederick Edge, M.D., F.R.C.S., in his 74th year.
FORT.—On Feb. 16th, at Penticton, British Columbia, of pneumonia, Charles Leyland Fort, M.R.C.S. Eng., aged 67.
GRAY.—At Little Mead, Holtye, Cowden, Kent, on May 12th, A. Charles E. Gray, O.B.E., M.D. Funeral at Holtye Church, on May 15th, at 11.30 A.M.
JENNINGS.—On May 12th, at Cornwall-gardens, S.W., Brevet Col. Edgar Jennings, I.M.S., retired.
LYDON.—On May 15th, Helen Anderson, M.B. N.U.I., wife of Dr. F. L. Lydon of Golders Green, aged 34.
MURCHISON.—On May 12th, Finlay Murchison, M.B. Edin., late Resident Licensee of Wyke House, Isleworth.
ROWE.—On May 11th, at Bradford, Joseph Hambley Rowe, M.B. Aberd., aged 66.
SCOTT-TURNER.—On May 12th, at Anerley, Arthur Scott-Turner, M.R.C.S. Eng., J.P., aged 66.
WILSON.—On May 12th, W. Bernard Wilson, M.R.C.S. Eng., of Streatham-hill, S.W.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.